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The Imperial and Royal Austro-Hungarian Navy

The Imperial and Royal Austro-Hungarian Navy

Anthony Sokol

UNITED STATES NAVAL INSTITUTE

ANNAPOLIS, MARYLAND

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SEA POWER MONOGRAPH NUMBER 3
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To my brother
HANS H. SOKOL,
in whose footsteps
I follow.

The author as a junior officer in the Austro-Hungarian Navy.

Preface

FEW PEOPLE NOWADAYS HAVE ever heard of the Austrian or Austro-Hungarian Navy. There are no books about it in English, and not many references to it are to be found in general naval literature.

And yet, that Navy had a history of some two hundred years, for the last sixty of which it was one of the great navies of the world. It could boast of achievements in peace and war which have their effect even today; the torpedo is an Austrian invention; the Battle of Lissa, in 1866, was the first fight between ironclad fleets, and it influenced naval architecture down to World War I, when battleships still were built with a vestigial ram.

In its last struggle the Austro-Hungarian fleet was opposed by an overwhelming array of force. Yet it remained undefeated and managed to defend the coasts entrusted to it. Throughout its existence, the Imperial and Royal Navy of Austria-Hungary flew its flag honorably, and ceased to exist only when the state that had created it vanished.

Whatever is or should be the purpose of studying history in general, there are lessons to be learned from naval history in particular. The principles taught by the history of the Austro-Hungarian Navy are as valuable in these days of automation as at any other time: that the human element is the decisive factor in war as well as in peace, and that man's ingenuity, courage, and determination can overcome seemingly insurmountable obstacles and achieve the apparently impossible.

In an age of nuclear bombs and intercontinental missiles, those truths are easily forgotten. It is hoped that the history of the Austro-Hungarian Navy, though only a small part of world history, may help us to remember them.

ANTHONY E. SOKOL
Stanford University

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The Imperial and Royal Austro-Hungarian Navy

KAISER FRANCIS I AT ZARA

Painting by Alex Kircher

CHAPTER I

A Reluctant Start 1382-1797

THE AUSTRO-HUNGARIAN NAVY IS no more. But its end was not foreseen when one of its warships fired the first shot in World War I. The gun that fired that shot on 28 July 1914 was mounted on a monitor in the Sava River. Three years later, in the nearby Adriatic Sea, Austrian cruisers scored what was probably another "first," when the fire of their guns was directed by seaplanes circling above them.

Those two episodes belong to the last chapters of a story that begins in 1382, when the port of Trieste, hard-pressed by the great power of Venice, placed itself under the protection of Duke Leopold III of Austria. Although protection gradually developed into Austrian possession of the port, some three hundred years were to pass before Austria felt she had any need for fighting ships.

At one time, Austria had an admiral but no navy. This was in 1628, when General Albert Wallenstein, having defeated the German Protestant princes and chased the Danes out of Germany, was rewarded with the duchy of Mecklenberg on the Baltic. He hoped that, with free access to that sea, he would be able to make his emperor supreme afloat and, as an indication of his new authority, he was given the title Admiral of the Baltic and Ocean Sea. However, his failure to capture the German port of Stralsund after several months of siege frustrated his ambitious plans, and his assassination in 1634 by his own officers put an end to his hopes.

About 1700 the imperial general Prince Eugene of Savoy organized and made skillful use of a flotilla on the Danube River. Manned mostly by crews drawn from the seacoast, the flotilla supported the operations of the imperial armies, and played an important part in the defeat of the Turks during the wars for the liberation of Hungary from Turkish rule.

The need for a seagoing naval force was borne in on Austria early in the eighteenth century by various events, not the least of which was the bombardment of Trieste by a French fleet during the War of the Spanish Succession (1701-1715) in which Austria was allied with England. The Treaty of Rastatt, which concluded that war, gave to Austria the Spanish Netherlands (roughly comparable to present-day Belgium), Naples, Sardinia, and Milan.

Naples and Sardinia did not long remain in Austrian possession, but nevertheless, they and the Netherlands gave Austria more contact with salt water than she had ever had before.

Austria's dawning awareness of sea power coincided with a wave of interest in maritime affairs that was sweeping Europe and was spawned by contemporary economic theories of mercantilism which, in turn, led to the acquisition of colonies, the founding of trading companies, and the creation of navies.

Albert Wallenstein

Geographically, Austria's ability to support overseas enterprises and trade was poor. Although three big navigable rivers flowed through the lands of the Habsburgs—the Elbe to the North Sea, the Oder to the Baltic Sea, and the Danube to the Black Sea—the mouth of each lay in foreign, and often hostile, territory. To be sure, the recently acquired Netherlands offered an outlet to the Atlantic, but they were not contiguous to the rest of Austria, and economically they were almost independent. The only sea the Austrians could reach without crossing foreign territory was the Adriatic. Even here, however, there was difficulty, for the Alps lay in the way and there was no navigable river joining the heart of Austria to that sea.

NEVERTHELESS, Emperor Charles VI, in the spirit of his times, declared that "navigation and commerce are the foremost pillars of the state," and set to work to exploit whatever advantages he could take from the sea. He built a road across the mountains between Vienna and Trieste, a distance of over 200 miles, using the Semmering Pass, and in 1719 he declared Trieste and Fiume (the latter incorporated into Austria in 1466) free ports. Thereafter, Austrian waterborne foreign trade began to develop, helped by the fact that nearby Venice, which had been on the economic decline ever since the discovery in 1486 of the Cape route to the Indies, was being further weakened by territorial losses resulting from her wars with the Turks.

Following the example of the Atlantic countries, in 1722 Charles VI granted the Ostend Company,

SOUTHEASTERN EUROPE
1721
BRANDENBURG
SAXONY
Warsaw
HOLY
ROMAN
EMPIRE
SILESIA
BOHEMIA
MORAVIA
POLAND
AUSTRIA
Vienna
Danube R.
KINGDOM OF HUNGARY
Theiss R.
Buda
Pest
TYROL
Trieste
Drave R.
CROATIA
SLAVONIA
Sava R.
TRANSYLVANIA
BANAT
WALLACHIA
Venice
REPUBLIC OF VENICE
Adriatic Sea
BOSNIA
Danube R.
Black Sea
BULGARIA
SERBIA
TUSCANY
PAPAL STATES
MONTENEGRO
OTTOMAN EMPIRE
Rome
KINGDOM OF NAPLES
Naples

with headquarters in that city of the Austrian Netherlands, a 30-year charter to trade to the East and West Indies and to Africa. The company founded two settlements in India and carried on a highly profitable trade until the English and Dutch companies, whose shares were slumping in the face of this competition, began to exert pressure. The companies protested the intrusion by the Ostend Company and seized its ships. By 1725, when Spain gave her support to the Austrians, the English and Dutch governments had become aroused by the possible political as well as commercial effects of the situation. Using as a pawn the Emperor's worry that the great powers would not allow his heir, a daughter, to succeed him, they forced him to suspend the charter of the Ostend Company, and the company was dissolved in 1731.

MEANWHILE, Charles built a considerable navy in the Adriatic. Most of his officers were Italian or Spanish, though the admiral was English and the "regimental" band was made up of Turkish slaves. The fleet consisted of three ships-of-the-line, a frigate, and an assortment of large galleys, carrying a total of 500 guns and manned by some 8,000 men.

The hostility that the Atlantic nations had shown to the Ostend Company, recurring Austrian financial crises, and the Emperor's concern about his daughter's succession, induced him to abandon his maritime hopes. A committee he set up in 1738 to look into the status and future of the young navy reported that it "had little usefulness, caused great expense, and stood in danger of being defeated in case of attack." This gloomy diagnosis led to the abandonment of the naval ships in the Adriatic and the transfer of their crews to the Danube Flotilla. Thus ended Austria's first attempt to build a navy.

When interest in maritime affairs timidly arose once again, Charles VI had been succeeded by his daughter, Maria Theresa. If Austria's seaborne trade was to grow, a navy was needed to protect it. English pirates and African corsairs, the former sailing under the Prussian flag during the Seven Years' War (1756-1763) so as not to disturb English trade with Austria, were having such a deadly effect on Austria's unprotected merchant shipping that most of her overseas trade had to be carried in foreign ships. However, the naval program met with no success at this time and, not surprisingly, the merchant marine fared no better.

In the 1770s an East India Company was founded at Trieste, and attempts were made to establish colonies and trading posts at Delagoa Bay in East Africa, on the Malabar coast of India, and on the Nicobar Islands in the Bay of Bengal. After promising beginnings, however, these establishments were given up because the Vienna government did not support them financially, and was afraid of rearousing the wrath the great seafaring nations had exhibited against the Ostend Company earlier in the century. Austria was not ready for colonial or large-scale maritime ventures.

Attempts to re-create an Austrian Navy during Maria Theresa's reign failed, partly because the government expected Trieste and Fiume to bear its entire cost, a burden they refused to assume. So it was not until 1786, with Joseph II on the throne, that Austria again had a navy. In that year two cutters, each armed with 20 small guns, were bought in

Empress Maria Theresa

TOP: *Naval flag at the time of Emperor Charles VI, 1730*
BOTTOM: *Naval flag at the time of Empress Maria Theresa, 1749*

Ostend and sent to Trieste.

With that purchase the Austrian Navy may be said to have been born, for from then until 1918, though not without interruption, there was an Austrian Navy. Until Emperor Joseph II introduced a special standard for it, the Navy used the imperial one: black and yellow with a double eagle. The new standard, red, white, and red, with the ducal crown, became the Austrian naval ensign and so remained until the end of the Navy's life.

During the brief reign of Joseph's brother and successor, Leopold II (1790-1792), the Navy was put under the control of the port of Trieste. Hence, after Austria acquired the Venetian Navy in 1797, the flotilla that had been formed in 1786 became known as the "Trieste Navy."

TWO SHIPS-OF-THE-LINE

Painting by Alex Kircher

CHAPTER II

The Sailing Navy 1797-1848

SUDDENLY AUSTRIA BECAME THE only naval power in the Adriatic when, by the terms of the Treaty of Campo Formio in 1797, France ceded to her Venice, Istria, and Dalmatia. This meant that the head of the Adriatic, and most of its eastern shore, had become Austrian. The substance of that power, however, was doubtful. The "Trieste Navy" still consisted only of the two cutters bought in 1786, a few gunboats, and several armed merchant vessels. The newly acquired Venetian Navy had suffered from the French occupation of 1796 and systematic pillage of Venice, and few usable ships or stores were left. Moreover, political and economic chaos and numerous uprisings in the territory ceded to Austria at Campo Formio placed a heavy burden on her naval forces.

The tiny flame of naval interest that had led to the purchase of cutters in 1786 was kept alive by the new responsibilities. The "Trieste Navy" and the former Venetian Navy were put under a single operational command but, for the time being, they remained administratively separate.

By 1799, when Austria joined England, Russia, Portugal, Naples, and Turkey in the War of the Second Coalition against Napoleon, her two navies consisted of 37 vessels, mostly small coastal craft, with 111 guns and 787 men: an average of only 3 guns and 21 men per ship. In cooperation with the Austrian Army, this small force had some successes in the fighting in northeastern Italy near the mouth of the Po River, and in the defense of Venice. But Austria still did not have a naval force strong enough to protect her seaborne commerce from the depredations of French and North African corsairs. Yet, when Ancona surrendered to the Austrian Army in 1799 and three former Venetian ships-of-the-line fell into Austrian hands, they were broken up and sold, even though it would have been less costly to put them into service as the core of a useful navy than to continue suffering the losses inflicted by pirates.

Because they could not be implemented in time to achieve anything worthwhile in the campaigns of 1799, ambitious plans being made in Vienna for a respectable navy dissolved into the promulgation of some interesting new regulations. Officers, for ex-

ample, were called on to refrain from excessive shouting when directing sailing evolutions, captains were directed not to transact business on their own behalf, and surgeons were told to fumigate a vessel several times a day, should an infectious disease break out. One innovation was important: naval officers seeking promotion were advised to learn to speak German. Most officers of the Austrian Navy were Italian-speaking and, in spite of the advice to learn German, Italian remained the language of command until 1848. When the last Holy Roman Emperor, Francis II, combined all the provinces, kingdoms, and principalities then under Habsburg rule into the new Empire of Austria and proclaimed himself Emperor Francis I of Austria in 1804, his Navy became the Imperial Austrian Navy, a designation it retained for the next 60 years.

THE Treaty of Schönbrunn concluded in 1809, following Austrian defeats at the hands of Napoleon at Austerlitz and Wagram, forced such territorial concessions by Austria that the Empire was cut off from the sea, and its warships, such as they were, were taken over by the French.

From then until 1814 when the peace treaties of Paris and the Congress of Vienna which followed the Napoleonic Wars restored to Austria her coastal provinces, there was no Austrian Navy. Then, the restoration of Venice to Austrian rule provided five ships-of-the-line, two frigates, one corvette, and numerous smaller vessels left there by the French, along with many ships under construction. But the long years of war had left Austria financially weak, and she sold or abandoned most of them.

Political circumstances and economic conditions, however, soon forced a greater interest in the Navy and in the merchant marine, too. For instance, the marriage of the Austrian Archduchess Leopoldine to Emperor Pedro I of Brazil in 1817 led to the first crossing of the Atlantic by Austrian warships, when the frigates *Austria* and *Augusta* went to Rio de Janeiro. In 1820, the frigate *Carolina* conveyed the Austrian ambassador to Brazil to his post, and then sailed on to China, the first Austrian naval ship to make that trip.

In the first half of the nineteenth century, nationalism and liberalism were spreading in Europe, technology was developing, and new trade patterns were being created. Industry and trade, the sources of wealth of the new bourgeois class, became of paramount importance. And, since the state increasingly depended on the income from them, it had to promote them as much as possible, even if that meant allowing the middle class a greater share in the control of affairs of state.

Austria's trade with the Levant was growing by leaps and bounds, particularly during the 1820s, and her transatlantic traffic, which consisted largely of emigrants from eastern Europe, was increasing rapidly. A steamship company, the Österreichische Donau-Dampfschiffahrtsgesellschaft (Austrian Danube Steam Navigation Company), was organized in 1830 to operate on the Danube, in the Black Sea, and even in the Mediterranean. In 1834, the company's *Marie Dorothee* went from Trieste to Constantinople, thus becoming the first steamer of any flag to navigate in the Mediterranean. The company soon became an important economic asset for Austria, and is still operating. At the end of World

War II, it was forced to start again from scratch when the Russians chose to consider its ships and equipment as German property and confiscated them. Now, however, the Donau-Dampfschiffahrts-gesellschaft is back in business, as an operator of river ships, under the Austrian flag.

In 1836, Österreichischer Lloyd (Austrian Lloyd) was founded as a private enterprise to put the trade with the Levant on a more systematic basis. It is interesting to compare this founding date with those of other great shipping concerns: the Cunard Steam-Ship Company was founded in 1841, the Hamburg-Amerika Line (as a steamship company) in 1856, and North German Lloyd in 1857. After the opening of the Suez Canal, Österreichischer Lloyd ran regular services to India, the Far East, and South America. The company enjoyed an excellent reputation and developed into one of the great shipping companies of the years before 1914. It is still functioning, but is now called Lloyd Triestino and since 1918 has been under the Italian flag.

To protect this commercial activity from various forms of depredation and to back it up with prestige, naval power was essential.

Although Austria tried to remain neutral during the Greek War of Independence (1821-1829), her naval squadron based at Smyrna, then the leading port of the Levant, was forced into continuous warfare against Greek pirates who, in an effort to raise funds to carry on their revolution against Turkish rule, preyed on Austria's Levantine trade.

At the western end of the Mediterranean and in the Atlantic, the Barbary pirates were harassing Austrian shipping. In 1829 two corvettes and two smaller ships under Korvettenkapitän (Lieutenant Commander) Franz Bandiera sailed to the Atlantic

The SS Arciduca Lodovico *was the first steamship of the Austrian Lloyd, a firm founded in 1836 and still in existence under another name and another flag.*

A force under Korvettenkapitän Franz Bandiera bombards the port of El Araisch on the Moroccan coast in 1829.

coast of Africa to secure the release of an Austrian merchant vessel and her crew captured by Moroccan pirates. Through negotiation, Bandiera succeeded in liberating the Christian crew, but when the corsairs refused to return the ship, he bombarded the defended Moroccan city of El Araisch (Larache). By destroying two of the pirate vessels in that harbor and then bombarding several other towns, Bandiera forced the Sultan to return the vessel and to pay damages. Thereafter, Austrian ships were not molested by African pirates.

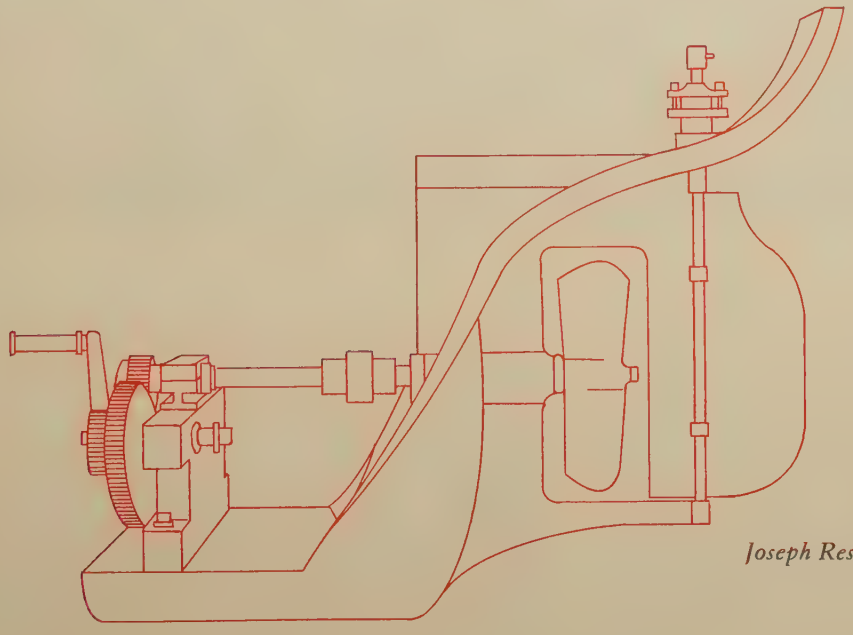
Another activity undertaken by the Navy in these years was a systematic survey and charting of the Adriatic Sea and coastline.

In the middle-1830s the Vienna government allocated funds for the construction of new ships and

the Navy began to modernize its equipment, chiefly by acquiring steamships. The first such ship, the 500-ton paddle steamer *Maria Anna,* was built in Porto Ré near Fiume and made her trial run in 1836.

DURING these years, an Austrian forester who was also a naval official, Josef Ressel, began experimenting with a screw propeller he had invented. In 1829 with the help of British financiers, he built the steamer *Civetta,* in order to demonstrate his propeller to Austrian authorities in Trieste. Forty passengers were aboard the steamer when the trial was made and the propeller worked well. However, a steam pipe broke, and the demonstration was called off as too dangerous. Although no one was hurt in the mishap, the police prohibited Ressel from continuing his promising experiments.

An event that occurred in 1837 drew the attention of the Austrian people to the sea as perhaps nothing else could have done: Archduke Frederick, aged 16, went into the Navy. He was the son of Archduke Charles, whose military exploits against Napoleon had brought him fame, and Frederick's choice of a naval career made it almost fashionable for others of the Austrian aristocracy to follow suit. From then on, naval service was considered a suitable career for Austrians who grew up inland as well as for those from the coast, a fact which, as will be seen, virtually saved the Austrian Navy from disintegration during the revolution of 1848.



Joseph Ressel's screw propeller.

Archduke Frederick storms the Syrian fortress at Saida in 1839.

The naval career of Archduke Frederick was brief but he quickly proved himself worthy of his renowned father. The story begins in 1830, when the Archduke was nine years old. The governor of Egypt, Mehmet Ali, revolted against his nominal overlord, the Turkish Sultan, occupied Syria, and went on to win a series of military victories over the Ottoman Empire. By 1839, after nearly a decade of internal warfare, the Turkish Empire was near collapse. England, Russia, and Prussia joined Austria in an effort to save it, England to keep the straits out of Russian hands, Russia to deny them to the English.

AN allied fleet of English, Austrian, and Turkish ships under the command of a British admiral was sent to recapture Syria for the Sultan. Frederick, now with two years' experience in the Navy, was in command of the

The Austrian squadron during the bombardment of St. Jean d'Acre, Palestine, before the landing.

frigate *Guerriera*. Together with his allies, he attacked the fortified city of Saida (in modern Lebanon), landed an Austrian detachment, and almost single-handedly captured the citadel, causing the city to surrender. Later, with the Austrian squadron under his command, the Archduke also cooperated in the capture of the Palestinian city of St. Jean d'Acre, where he landed and forced that city to capitulate, also.

When the campaign ended, Austria was the foremost naval power in the Levant, and her small Navy had an excellent reputation in Europe. This was the Golden Age of the Austrian sailing fleet. Archduke Frederick was made Commander-in-Chief of the Navy in 1844 and immediately set out to strengthen and improve it. Unfortunately, he did not have much time. Three years after he took command, he died, at the age of 26, and the Austrian Navy was once again without a strong leader. But, unfortunately, not for the last time.

THE BATTLE OF HELGOLAND, 1864

Painting by Alex Kircher

CHAPTER III

From Revolution to Victory 1848-1866

DISSATISFACTION WITH THE REactionary and repressive regime of Austrian Chancellor von Metternich flared into open rebellion in the year 1848. Following the February Revolution of that year in France, the citizens of Vienna rose against their government and created a situation with which, at first, the latter could not cope. Revolt quickly spread to all parts of the Empire as well as to the German states to the north. Metternich was forced to flee the country. The Emperor Ferdinand abdicated in favor of his nephew, Francis Joseph, and constitutional reforms were promised.

The revolution took different forms, however, and different demands were made by the various ethnic groups living in the Austrian Empire. Differences were due partly to the different levels of cultural development among the groups concerned, and partly to the fact that while some of the nationalities of the Danube Monarchy, such as the Czechs, Slovaks, and Magyars, were to be found only within its borders, others, such as the Germans, Poles, Ukrainians, Romanians, Southern Slavs, and Italians, were contiguous to large bodies of people who spoke the same language they did but belonged to different political units. These neighboring states began to exert pressure on their ethnic brothers within the Austrian Empire by urging them to join in creating larger independent national states. By the middle of the nineteenth century, this attraction was felt least among the German subjects of the Habsburgs and most among the Italian ones.

The chief demand of the German Austrians, the most advanced and wealthiest of the Empire's nationalities, was for a form of democratic government that would permit them to take their rightful place in governing the country. The Magyars, on the other hand, wanted to establish a kingdom or a republic completely independent of the Habsburg dynasty and of Austria proper. The main ambition of the Italians was to be united with their fellow-Italians across the border, and to form with them a Kingdom of Italy.

Most of the Slavs were just beginning to develop a feeling of nationality and their chief interest lay along such cultural lines as reawakening interest in

their language and literature rather than in the pursuit of political goals. There were also some uprisings of peasants against their aristocratic overlords.

The revolution of 1848 thus presented a complex and confused spectacle. Events in one part of the Empire often had little relation to those in others. This lack of cohesion made it possible for the Habsburg rulers to play one nationality against another, using troops from one region to fight the people of another, and so to re-establish their own rule. In this account, however, we are confining our interest to events in the Italian and German provinces of Austria, since they are the only ones that had direct bearing on the development of the Austrian Navy.

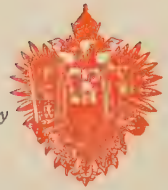
Emperor Francis Joseph I

AT the end of the Napoleonic Wars, Italy consisted of a number of independent states, the two most important of which were the Kingdoms of Sardinia-Piedmont and Naples. The northernmost part of Italy, the Lombardo-Venetian Kingdom, was annexed to Austria by the Congress of Vienna in 1815.

During the first decades of the nineteenth century, the Italians experienced the upsurge of liberal and national sentiments that swept over other parts of Europe. In most of the Italian states, the people were trying to obtain constitutional reforms, and a national organization called "Giovine Italia" (Young Italy), which stood for the liberty and unification of Italy, found wide popular support.

The rulers of the various Italian states were finally induced to make constitutional reforms, and the Young Italy movement became increasingly nationalistic. In time, Sardinia and its ruling family of Savoy assumed leadership of the national movement, whose full wrath was then directed against the only foreign power that still controlled a large part of Italy, the Austrian Empire.

The news of the revolt in Vienna set off anti-Austrian rioting in Milan and, a few days later, in Venice. The Milanese rebels asked for help from Sardinia and Naples, and got it. The local Austrian troops under the aged General Radetzky, on the other hand, did not get the reinforcements requested



from Vienna and had to withdraw from Milan to the square of fortresses between Lombardy and Venetia, known as the Quadrilateral.

In Venice, which was the major naval port, the unpopular commandant of the Navy Yard, Captain Marinovich of the Austrian Navy, was beaten to death by the workers, while the officer in charge of the marine guard, who wanted to go to his aid, was prevented by his own men. When the Commander-in-Chief of the Navy, Vice Admiral Anton von Martini, a former general who had been appointed admiral because of the lack of high-ranking naval officers, went to demand the surrender of the rebellious workers, he was deserted by his officers, most of whom were Venetians, captured by the rebels, and held prisoner.

On 22 March 1848, the Austrian garrison withdrew from the city, which then proclaimed itself once again independent, as the Republic of Venetia. This development created an extremely difficult situation for the Austrian Navy, most of whose men were Italian. The sympathies of these men naturally lay with their Italian compatriots, but they had sworn an oath of loyalty to the Emperor of Austria under whose flag they served. The serious dilemma that this situation constituted for many of them was resolved when the Austrian authorities, realizing that under the circumstances Italian crews would not be of much use to Austria, freed them from their oath and permitted them to go to their homeland.

The three corvettes and many smaller vessels of the Austrian Navy that were in Venice at the time of the uprising fell into rebel hands, as did the naval arsenal and its stores. The departure of the Italian crews created such a shortage of officers and men that even the few ships remaining to Austria could not be manned. Out of a total of about 5,000, only 72 officers and 665 men stayed loyal to the Emperor, and merchant seamen, soldiers, and inexperienced volunteers had to be taken into the Service.

Furthermore, in the three months since the death of Archduke Frederick, the Navy had had four commanders-in-chief, and now, with Admiral Martini a prisoner of the rebels, it had need of another.

But the catastrophes of Milan and Venice turned out to be blessings in disguise. Hitherto, the Navy had been a more or less local affair of Venice and Trieste, with Italian crews, the Italian language as the medium of command, Italian ship names (such as *Lipsia* instead of *Leipzig*), and Italian customs and traditions. The losses of Italian territory and crews ended this local character. Although henceforth most of its officers were from the Empire's German-speaking regions, and most of its enlisted men were from Istria and the Dalmatian coast, all nationalities of the Monarchy began to be represented. German became the language of command, and customs and traditions began to follow those of northern Europe rather than of Italy.

A POWERLESS FIGHTING NAVY

STEPS were taken to make the small remaining force operational. The military commander of Trieste, General Count Franz Gyulai, assumed command of the Navy temporarily, and recalled all ships stationed along the coast, in the Levant, and in other parts of the Mediterranean. Because of its good natural harbor and roadstead and because it was easier

to defend than Trieste, Pola was chosen by Gyulai as the rallying point for the returning vessels, and towards the end of April a small squadron set out from there to blockade Venice.

SARDINIA and Naples, having declared war on Austria on 22 March, the day the Austrian troops withdrew from Venice, sent a naval force into the Adriatic to aid the besieged city. This allied fleet, reinforced by some of the Austrian ships that had fallen into Venetian hands and a number of new ones that had been built in Venice, was commanded by Rear Admiral Giovanbattista Albini of Sardinia, and consisted of five frigates and some smaller vessels.

The Austrians had three frigates with from 44 to 50 guns each, and two corvettes, one with 18 guns and one with 20. Additionally, they had eight brigs with from 6 to 16 guns each, 34 small gunboats with 3 guns each, and a steamer with 2 guns. This force was not much smaller than the Italian, but it was inferior both in the experience of its crews and in the size of its guns. Hence, the Austrians gave up the blockade and went back to Pola before Albini got to Venice.

On 22 May, the allied fleet appeared off Pola and, when asked why he was there, Albini answered proudly: "To fight!" The Austrian naval commander of the moment, Captain Ludwig von Kudriaffsky, knew that his force could not win in battle but, considering the defense of Trieste, which was Austria's main commercial port, more important than that of the yet undeveloped port of Pola, reversed General Count Gyulai's decision. He ordered the fleet to sail to Trieste. There being little wind and his need to move being urgent, he engaged Austrian merchant steamships to tow his vessels the 60 miles to Trieste during the night. It was not until the next morning that the Italians realized what had happened and followed him. Despite his high-sounding words, Albini had no intention of attacking the Austrian fleet or the port of Trieste. He was, in fact, under orders to avoid fighting because, as part of Austria proper, Trieste belonged to the German Confederation, with which Sardinia did not want to risk war. With the Austrian fleet too weak to take the offensive, the result was a stalemate of several months' duration.

The Austrians were humiliated at possessing a fleet inferior to those of such small states as Sardinia and Naples, and made various efforts to reinforce it. They armed a few merchant vessels, and tried to buy warships in England, Russia, Turkey, and Egypt. Had these attempts succeeded, English officers were to be hired to man the new ships. However, the governments concerned did not want to be involved in the conflict, and the Austrian treasury, evidently feeling not at all humiliated, did not want to spend the money. It was suggested that Austrian shipping be put under the protection of Great Britain but the latter turned down that idea.

Many suggestions for redressing the balance between the allied and Austrian fleets were submitted to General Gyulai, and two of them are worth mentioning. Franz Pfeifer, a chemist and mechanic, suggested a device consisting of two cylinders with conical ends; one containing compressed air to drive a screw and propel it through the water, the other containing an explosive which would detonate upon contact with an enemy vessel. The device was to be

guided by a magnet which would activate electrical impulses in case of deviation from the set course. Contemporary technology was not ready for this notion, and nothing came of it. However, it is interesting to note that in 1864, sixteen years after Pfeifer's proposal, the idea for a self-propelled torpedo was developed by Commander Johann Luppis of the Austrian Navy and found greater acceptance.

The other suggestion was to resurrect an old stratagem: the use of fire ships. This idea was rejected on the grounds that it was an inhumane way of fighting! The real reason was probably fear of retaliation.

NONE of the efforts or proposals came to anything, and chafing, like many of his comrades, at the inactivity, a young lieutenant on the brig *Triest,* Wilhelm von Tegetthoff, wrote his father that unless the situation improved soon, he would get out of the Navy. This is the same Tegetthoff who, almost 20 years later, commanded a victorious fleet at Lissa.

In June the small Neapolitan squadron operating with Admiral Albini was withdrawn from the Adriatic, an event that did not significantly change the imbalance of maritime power. But the overwhelming victory of General Radetzky over the Sardinian Army at Custozza on 24 July 1848 re-established Austrian control over Lombardy, and did change considerably the situation on land. It led to an armistice between Austria and Sardinia.

Although under the terms of the armistice concluded on 9 August, Admiral Albini was required to leave the Adriatic, he did not do so. He withdrew

only to Ancona, about 130 sea miles south of Venice, thus preventing the Austrians from resuming the blockade of Venice which he had forced them to relinquish in May. Austrian troops were besieging Venice by land, but unless the city were cut off by sea as well, it could hold out indefinitely.

In September, in exchange for Italian prisoners held by Austria, the Venetians released Admiral Martini, and he resumed command of the Navy. His first move was to propose the purchase of additional steamers which would be required for an effective blockade of Venice. This brought him up against the fiscal authorities, who had the last word on everything, and that word was more often negative than not. So it was in this case.

The continued presence in the Adriatic of Ad-

The Austrian fleet bars the entrance to the port of Venice in 1849. The blockade became possible only after the more powerful Sardinian fleet had left the Adriatic Sea.

miral Albini's Sardinian force kept the larger Austrian vessels from putting to sea, but a flotilla of small craft, mostly rowboats or fishing vessels manned by naval crews, lent useful support to the Austrian Army in its operations against Venice.

On 12 March 1849, Sardinia denounced the armistice concluded with Austria seven months previously, and a week later hostilities were resumed. In a campaign unique for brevity and decisiveness, Radetzky ended the war in three days by defeating the Italians at Mortara and Novara, and compelling Sardinia to conclude a peace treaty. Venice continued to hold out, but the revolutionary movement elsewhere in the Austrian part of Italy had been brought to an end.

Albini finally left the Adriatic and the Austrians were able to get to sea once again and resume the blockade of Venice which they had started a year earlier. The fleet still lacked real power, and various schemes to make up for it were proposed. Lieutenants Josef and Franz von Uchatius suggested that balloons be launched from ships to drop bombs on the city. Some bombs were dropped in this way, but the scheme was abandoned when the wind changed direction and the launching ships were in danger of being hit by their own bombs.

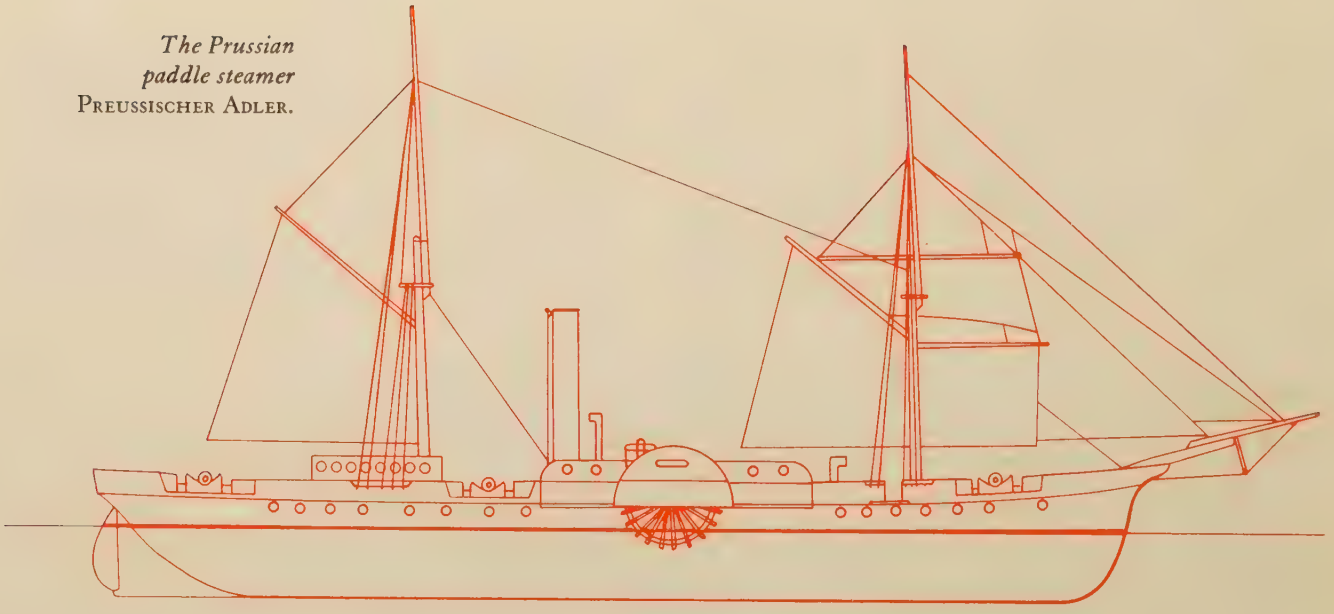
VENICE was doomed anyway. Besieged by sea as well as by land, facing starvation, and without allies, the city surrendered on 28 August 1849.

When the Austrians returned to Venice they found several frigates under construction, and, already afloat, three large and two small corvettes, a few steamers, and a number of smaller craft, all in good condition. This was a larger fleet than they had left behind when they withdrew 17 months earlier, and the best of these ships were added to their Navy, bringing its strength up to: 4 frigates of 1,200 tons displacement and with from 32 to 42 guns each, 6 corvettes of 800 to 900 tons and 20 guns each, 7 brigs of 500 tons and 16 guns each, about 10 other sailing vessels, and 4 steamers.

BIRTH AND DEATH OF A GERMAN NAVY

WHILE Austria was suppressing revolt all over the Empire, the people of the German states were agitating for liberal reforms and the creation of a strong German national state, to take the place of the loose coalition of principalities called the German Confederation. To this end the people, independently of their princes, convened a national assembly known as the Frankfurt Parliament, which was to promulgate a constitution for the proposed German Empire. While the Parliament was in session, the status of the duchies of Schleswig and Holstein became an issue and intensified German national feeling.

Situated between the North and Baltic seas, the two duchies had a predominantly German population but they were ruled by the King of Denmark. Holstein was actually a member of the German Confederation. When Frederick VII ascended the throne of Denmark in 1848, he tried to separate Schleswig and Holstein from Germany and make them an integral part of Denmark. Thereupon, the people of the two duchies revolted and the Frankfurt Parlia-



The Prussian paddle steamer PREUSSISCHER ADLER.

ment, supporting their cause but having no military power at its disposal, commissioned Prussia to send troops to their assistance.

ALTHOUGH Prussia gained military victories, the campaign failed, for two reasons. One was that England, France, and Russia wanted to keep a strong Denmark guarding the entrance to the Baltic Sea and were opposed to Schleswig and Holstein being added to Germany. The other was that the German Confederation had no naval power and, without it, the German armies were heavily handicapped in that sea-girt region.

A strong movement for the creation of a federal or imperial navy swept over Germany. The Germans wanted a navy strong enough to make it impossible for a small power, such as Denmark, to blockade their coast and disrupt their maritime trade, and with the war still on, Prince Adalbert of Prussia was appointed chairman of a commission to organize such a service.

An attempt to buy warships in England was unsuccessful, so several merchant vessels were bought and armed. There were not many Germans with naval experience, and the American government was asked to permit some of its officers to join the German Navy on a temporary basis. This effort also failed, but a civilian mariner, Captain Karl Bromme, commonly known as Brommy, who had served in the American merchant marine and had seen naval action in the Greek War of Independence, was appointed commander-in-chief of the new navy.

The infant German fleet engaged in one action

before its life was snuffed out. In spite of the hopelessly inadequate material at his disposal, Brommy made a gallant attack on a Danish frigate, and withdrew to port only when the entire Danish blockading squadron came into sight. Two weeks later, in April 1849, with the princes back in power, the Frankfurt Parliament was disbanded. The Confederation decided to dissolve the Navy, sell the ships, and discharge the admiral. Some of the jobless officers joined the Austrian Navy: among them was Admiral Bromme, who became chief of the Technical Department.

Peace between Prussia and Denmark was concluded in 1850, with both sides reserving their rights. The London Protocol of 1852 guaranteed the inseparability of the duchies of Schleswig and Holstein and continuance of their union with Denmark.

In 1852 Prussia began, on a very small scale, to create a fleet of her own, but for a while the Austrian Navy was the most effective naval force at the disposal of the German Confederation.

ARCHDUKE FERDINAND MAX

IN 1848, at the age of 18, Francis Joseph I succeeded to the throne of Austria. In order to solidify the North European influence in his Navy, in March 1849 he appointed a Dane, Rear Admiral Hans Birch von Dahlerup, as commander-in-chief. Dahlerup directed the final phases of the Austrian blockade of Venice.

After the fall of Venice, which ended 17 months of fighting in Italy, the new commander-in-chief, who had brought a number of Scandinavian and German colleagues to Austria with him, set to work to reorganize and strengthen the Service under his command. He submitted plans for the acquisition of new ships, worked out new Service regulations, founded a school for naval officers, and drew up a training program for petty officers and men.

Dahlerup laid the foundation for a modern, effective navy. But, like many other naval officers of his day, he could not make the psychological adjust-

Archduke Ferdinand Max

ment necessary to handle contemporary advances in technology. Moreover, his Nordic efficiency and ruthless methods were incompatible with the more easy-going Austrian temperament, and he resigned after only two and one-half years of command.

ONCE again the Austrian Navy fell under the command of a soldier, Lieutenant General Count Franz Wimpffen. Several frigates and small vessels were acquired during this period and, in 1852, the largest Austrian squadron ever assembled up to that time, 14 warships, cruised the Mediterranean under the command of the 20-year-old Archduke Ferdinand Max, brother of the Emperor. Two years later, the Archduke was appointed commander-in-chief.

When Ferdinand Max, one of the most talented of the Habsburg princes, was appointed commander-in-chief he had been in the Navy for only four years. He used his prestige, youthful enthusiasm, and love of the Service to promote it in every way possible. Under his command, the Navy grew, and many reforms were introduced. Pola, with its excellent natural harbor and good strategic position in relation to the east coast of Italy and for the protection of Trieste, was chosen as the Empire's chief naval port. It had not been so used before on account of its unhealthy climate and lack of facilities, but the surrounding swamps were drained, an arsenal and building yards were established, and coastal defenses were organized. Another achievement of the Archduke that was beneficial to all Austrian maritime interests was the establishment in 1862 of a Ministry of Marine separate from the Ministry of War. This new ministry handled the affairs of the merchant marine as well as those of the Navy.

Ferdinand Max also enhanced the prestige of his Navy by having it participate in scientific enterprises. Between 1857 and 1859, for instance, the frigate *Novara,* under the command of Commodore Bernhard von Wüllerstorff-Urbair, made a world cruise, and the many scientists who went on the trip gathered a wealth of data that was of value to the entire Western World. The corvette *Carolina* accompanied the *Novara* as far as South America, and she also returned with valuable information. Just as with other navies, the organization of scientific expeditions became an important function of the Austrian Navy.

In 1856 the steam frigate *Radetzky* was bought in England and used as a model for the building of ships in Austria. This was the beginning of the Austrian shipbuilding industry. From then on, most of the country's naval vessels were built in Austrian shipyards.

AUSTRIA'S last line-of-battle ship, the wooden, 5,194-ton *Kaiser,* with auxiliary steam power, was launched at Trieste in 1858. Eight years later she took part in the Battle of Lissa, and that was the last time a ship of her type saw action anywhere in the world.

Although the Navy had been developed considerably in the ten years since Austria had re-occupied her Italian possessions, it was still too weak to face as powerful a foe as the French Navy, when Sardinia, allied with Napoleon III of France, provoked a new war against Austria in 1859. When a large

French fleet sailed into the Adriatic, the Austrian ships withdrew to port. However, apart from blockading the Austrian coast, the French took very little action, and there was no noteworthy encounter between the two naval forces. The war, which had begun in April, ended in June with the defeat of the Austrian Army at Solferino. By the terms of the peace treaty that followed, Austria surrendered Lombardy, but kept Venetia.

While this brief war was being fought, the *Novara* was on her way home from her world-circling expedition and there occurred an incident that is, perhaps, unique. Though he was at war with Austria, Napoleon declared her a neutral ship, not to be attacked or hindered, because she was carrying scientific treasures of value to the whole world.

Dismayed by yet another revelation of Austrian naval helplessness in the face of an enemy, and

The screw frigate Novara, *53, making her world cruise in 1857, gathered a wealth of scientific data.*

A train on the Vienna-Trieste railroad, opened in 1854, crosses a bridge in the Semmering Pass.

prodded by the unceasing activity of the Navy's young commander, the Vienna government finally set out to establish a really effective navy. To begin with, 10 steam-driven gunboats were ordered to replace some of the small sailing vessels. In 1861, after Italy had begun to acquire armorclad warships, Austria did likewise, and laid down two. The next few years saw the conversion of some of the older sailing vessels into steamships and the acquisition of more armorclads. By 1866, the Austrian Navy owned seven armored ships.

Credit for developing the Navy during this period was due largely to the efforts of Ferdinand, but several factors were working for him.

A railroad connecting Vienna with Trieste, using the Semmering Pass, had been opened in 1854. This greatly facilitated overseas trade, and a popular parliament, profiting from the growth of industry, commerce, shipbuilding, and maritime trade, showed an occasional flash of interest in matters that promoted these things, including the Navy that existed for their protection.

The rapid development of technology also helped. The introduction of steam, the screw propeller, rifled shell guns, and finally, armor, greatly reduced the value of ships that lacked such features. As a result, naval newcomers found that, even if they owned fewer ships than older navies, they were more evenly matched with the latter than formerly. Italy, for instance, had become by 1866 the third

strongest naval power in the world, although she was not at the time able to provide her own naval requirements; the ships she bought from the United States and England were protected with armor from France and equipped with the most modern and powerful guns available.

PARADOXICALLY, the advance of technology that freed ship movements from the vagaries of the wind was responsible for the reintroduction of a weapon that had not been used in naval warfare for almost three hundred years, the ram. Last used at the Battle of Lepanto in 1571, when warships were rowed into action, the ram was revived during the American Civil War and was to play an important part in the Battle of Lissa in 1866.

It was a misfortune for the Austrian Navy that on 10 April 1864, Ferdinand Max accepted the imperial crown of Mexico. Naturally, that ended his naval career and, before long, it ended his life. He did, however, live long enough to see the Navy he had done so much to create perform gallantly at Helgoland the year he left and win a significant victory at Lissa two years later. After he was shot in 1867, his body was returned to Austria aboard the same *Novara* in which he had seen his first naval service and which had taken him to Mexico only three years before.

When the Archduke left, the Ministry of Marine was abolished, the administration of naval affairs reverted to the Ministry of War, and the interests of the merchant marine were again separated from those of the Navy.

WAR OVER SCHLESWIG AND HOLSTEIN

IN 1863 the King of Denmark tried once again to incorporate the duchy of Schleswig into Denmark. He thereby revived the whole Schleswig-Holstein question, and another wave of protest swept over Germany. The Diet of the German Confederation demanded that the two duchies be taken forcibly from Denmark.

The following year Austria joined Prussia in an alliance against Denmark, and in February the allied troops invaded Schleswig. After a series of victories, they occupied the whole peninsula of Jutland.

But the Danes, retreating to the island portions of their realm, were not ready to give in. They hoped that if they could hold on long enough, the great powers, especially England, would come to their assistance. In the meantime, the islands were safe from invasion, since the only maritime force then available in northern Germany consisted of some Prussian gunboats. These craft were good for port defense, but certainly could not support an invasion. Furthermore, most of them were in the Baltic, and the German North Sea coast, with the important ports of Hamburg and Bremen, was unprotected. Consequently, the Danish fleet could and did inflict heavy losses on German commerce.

The Danish Navy consisted of four armored vessels, one steam-driven ship-of-the-line, four steam frigates, three steam corvettes, and numerous smaller steamers, besides a considerable fleet of sailing ships. Austria was the only member of the German Confederation with a comparable fleet, but its ships were in the Mediterranean, more than 3,000 nautical miles away, and for reasons of economy,

Wilhelm von Tegetthoff, as a student

most of the ships were not ready for service. Even so, the Austrian government gave in to the urgent pleas of the Germans and agreed to send a squadron of steam warships to the North Sea.

The squadron was to be commanded by Rear Admiral von Wüllerstorff-Urbair, who had commanded the *Novara* on her global cruise some seven years before, and was to consist of the ship-of-the-line *Kaiser,* the armored frigate *Don Juan d'Austria,* one corvette, two gunboats, and a dispatch vessel. He was to leave Pola as soon as the ships had been readied, but the Austrian treasury was as parsimonious as ever and it looked as though that might not be in time to do any good.

Fortunately, the screw frigate *Schwarzenberg,* 51 guns, and the gunboat *Seehund,* 4, under the command of Commodore Tegetthoff, were cruising in the Levant and were in service condition.

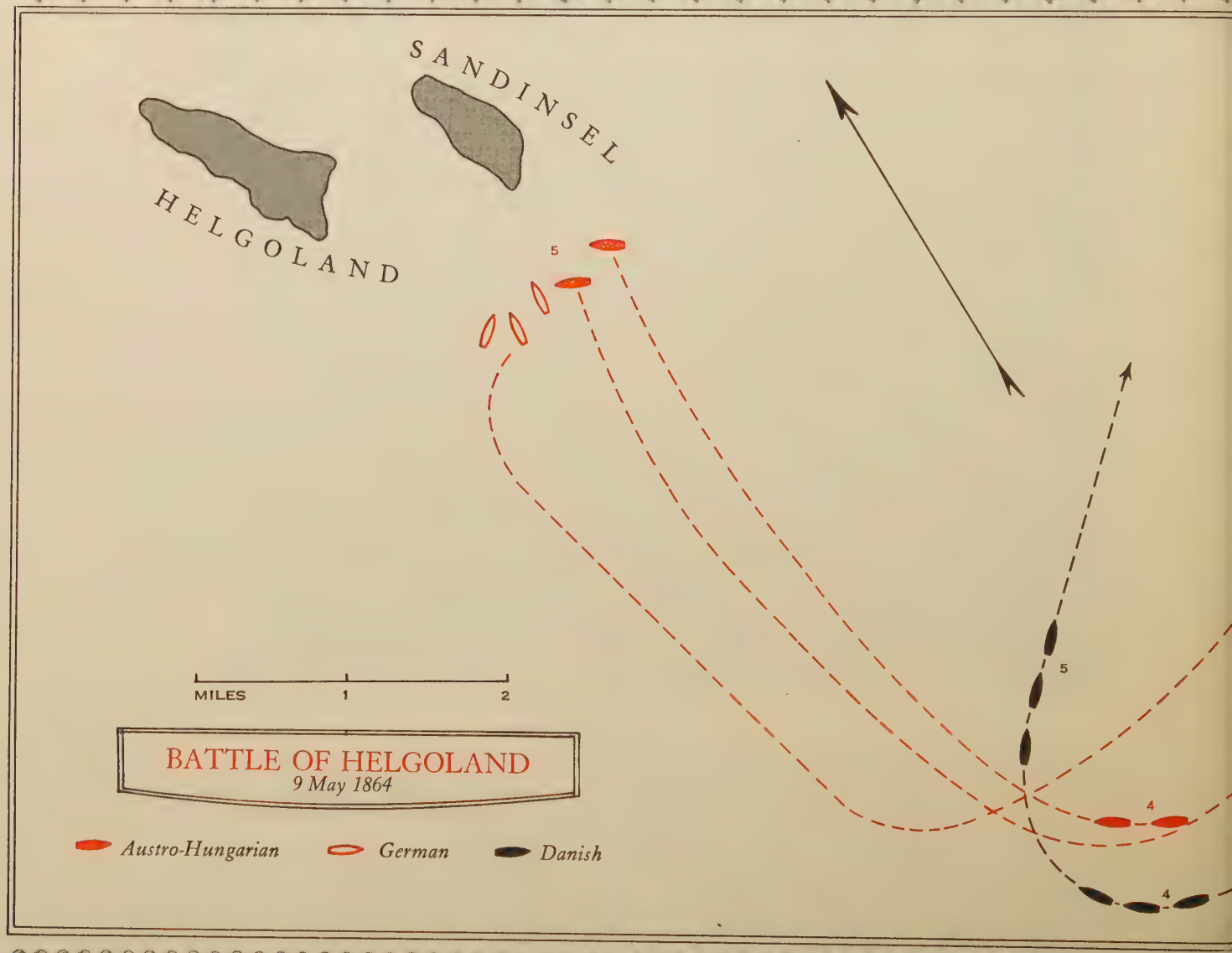
On 2 March Tegetthoff received orders to proceed to the North Sea. He was to be joined en route by the screw frigate *Radetzky,* 37, then nearly ready for sea at Pola, and when he got to Lisbon he was to wait for the squadron under Wüllerstorff.

A WORD here about Wilhelm von Tegetthoff is appropriate. Born in 1827 at Marburg, Styria (now Maribor, Yugoslavia), he was the scion of a Westphalian family which had moved to Austria in the eighteenth century. His father was a major in the Imperial Army. At the age of 13, the younger Tegetthoff went into the Navy and, as indicated earlier, suffered through the humiliating experiences of 1848 and 1859. His courage, energy, and intelligence early set him apart from his fellows and he was promoted rapidly. Even as a commander, he was the hope of the Navy. He was popular with his subordinates, who considered it an honor to serve under him. Having previously accomplished difficult missions with prudence, tact, and persistence, Wilhelm von Tegetthoff was probably the only man in the Austrian Navy who could have carried out successfully the mission against Denmark entrusted to him in 1864.

The screw frigate SCHWARZENBERG *was Tegetthoff's flagship at Helgoland in 1864.*

The *Radetzky* joined Tegetthoff at Lisbon on 4 April and he immediately left for Brest, where he was instructed not to await Wüllerstorff but to proceed to the North Sea. His next stop was the Downs, for coaling. There, he ran into the animosity of the British, who did not want Denmark to be defeated and were strongly opposed to the presence of a new naval force in the North Sea. The *Seehund* ran aground as she was entering Ramsgate, and was so seriously damaged that she had to be left behind. This incident apparently was the result of deliberate action by the English pilot.

British public opinion was aroused to the point where there was talk of war with Austria. The British Channel Fleet was ordered to the Downs, and a British training squadron was recalled from Portugal to be ready for any eventuality. The British intended these preparations to deter Tegetthoff from continuing on his mission. However, diplomatic negotiations ended in an agreement that allowed the


SANDINSEL
HELGOLAND
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5
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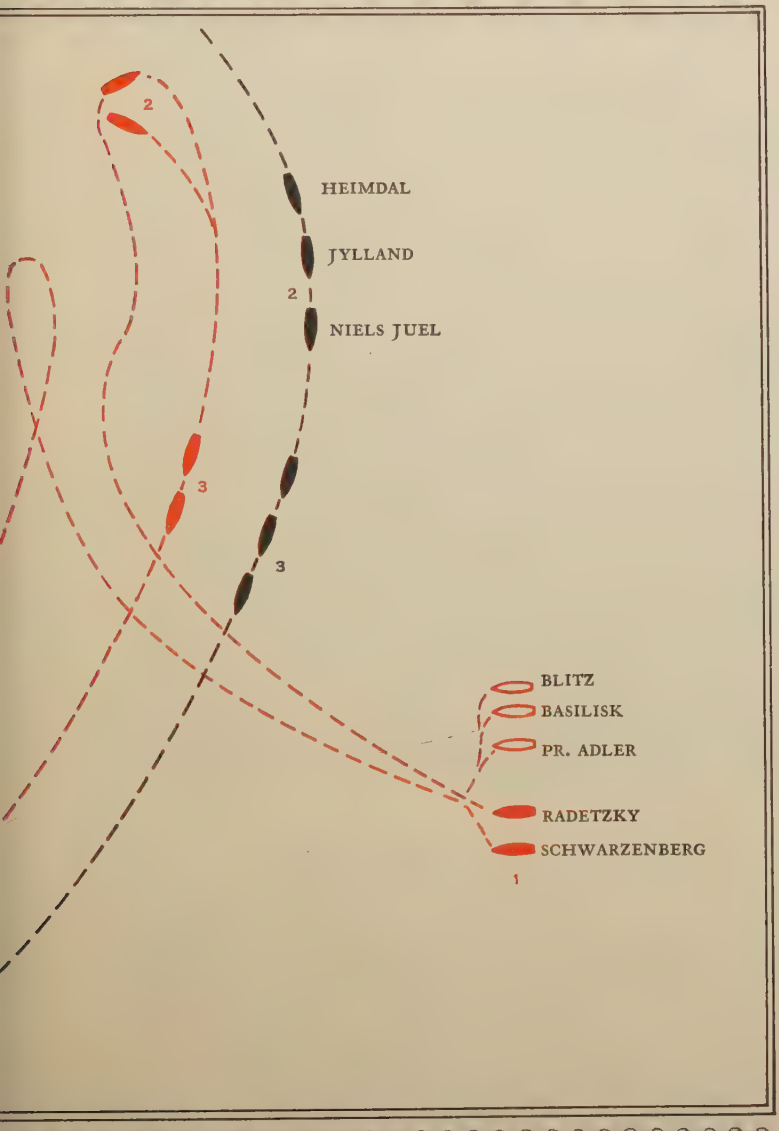
BATTLE OF HELGOLAND
9 May 1864
Austro-Hungarian
German
Danish

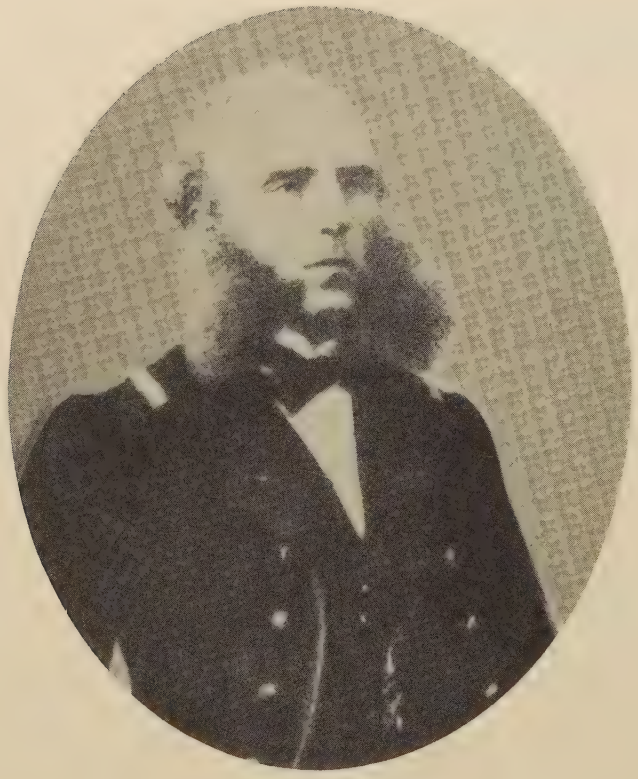


Austrians to go to the North Sea, but prohibited them from going to the Baltic.

Hoping for a chance to win a naval victory that would offset their defeats on land, the Danes seemed to welcome the arrival of the Austrians. Although most of their fleet was in the Baltic for the protection of the major islands, and their North Sea blockading force under Commodore Suenson consisted of only two steam frigates, the *Niels Juel,* 42, and *Jylland,* 44, and the steam corvette *Heimdal,* 16, the Danes were confident of victory. They had 26 rifled guns in their three ships, whereas Tegetthoff had only eight in his two ships.

WHEN he arrived in the area, Tegetthoff was joined by three Prussian ships: two 350-ton steam gunboats with three guns each, and the paddle steamer *Preussischer Adler,* 4. The gunboats could make 9 knots, the paddle steamer, 10. This joint force proceeded to Cuxhaven, the roadstead of Hamburg, arriving there on 4 May. At sea again on 9 May, Tegetthoff sighted the Danish squadron near the island of Helgoland, about 40 miles from Cuxhaven, and at that time British-owned, and he launched his attack by firing from about 4,000 yards. The Danes lost no time in answering, and the range closed.

Through this action, the last ever fought between wooden squadrons, the Austrians broke the Danish blockade of the German coast.



Rear Admiral Tegetthoff

THE fighting went on for an hour and a half before the superiority of the Danish guns began to tell. Tegetthoff's flagship, *Schwarzenberg,* caught fire and burned so fiercely that he had to withdraw his little squadron to Helgoland. As soon as the fire was brought under control, he returned to do more battle, but Suenson had left the scene. The latter's ships had also been seriously damaged, and he had withdrawn to Norway for repairs.

Finding no foe, Tegetthoff took his still-smoking ships back to Cuxhaven. The *Schwarzenberg* had lost her foremast and bowsprit, and the Austrian casualty list was 37 killed and 93 wounded. Danish casualties were 14 dead and 54 wounded. The Prussian gunboats were unscathed.

IN spite of the damage they had sustained, the Austrians had won a strategic victory: the blockade of the German North Sea coast had been lifted, and German merchant ships could once again ply the seas unhindered. Tegetthoff went on to Hamburg, where he and his men were given an enthusiastic welcome. Austria, as well as Germany, was overjoyed by the result of the action and the bravery of the sailors, and Tegetthoff was promoted to rear admiral. Always modest, however, he did not often mention the fight. He described it in a letter to a friend: "Finally the 9th of May dawned, the day when I and my ships would receive our baptism of fire; the fight was soon over, the shells ceased to fly, only to make way for a veritable avalanche of red tape. . ."

It was almost two months after the battle at Helgoland, on 2 July, when the Austrian squadron under Wüllerstorff reached Cuxhaven. After its arrival, the allies made some small-scale landings on the islands in the North Sea off the coast of Jutland, but the Danes realized that further resistance was hopeless, and turned the duchies of Schleswig and Holstein over to the German allies.

Neither the German-Danish War nor the naval action off Helgoland are of great significance. His-

Sans foremast and bowsprit, the SCHWARZENBERG *makes repairs at the British island of Helgoland. The* RADETZKY, *little damaged, lies just beyond her.*

tories hardly ever mention the latter, except perhaps to say that it was the last fight between wooden squadrons. (The last fight between individual wooden ships took place a few weeks later, when the Union sloop *Kearsarge* met the Confederate raider *Alabama* on 19 June 1864.) It was, nevertheless, from accounts of the action at Helgoland that the world first heard of Wilhelm von Tegetthoff. Within two years it was to hear more of him and his small fleet.

THE BATTLE OF LISSA, 1866

Painting by Alex Kircher

CHAPTER IV

Lissa 1866

IT IS INTERESTING THAT AFTER taking part in the last action between wooden squadrons, the Austrian fleet should have been engaged in the first action between armored squadrons. The negative influences that the battle at Lissa had on naval developments, the overemphasis on the ram and concurrent neglect of gunfire which resulted from it, often are mentioned. Many people considered that the tactics used by the victorious fleet resulted logically from the technological innovations of the time and that, since they had been successful once, they should be used in future fleet engagements. The Chinese admiral at the Battle of the Yalu during the Sino-Japanese War of 1894 obviously believed this, but he lost to a Japanese commander who did not depend on dubious lessons as the basis for his tactics.

In fact, the tactical lessons of Lissa, misleading as they were, are of minor importance compared to the truths that were re-proved there: men are more valuable than machines; courage and determination can offset unfavorable conditions; a great leader can inspire his men to do the apparently impossible; even good men can do very little when they are poorly led.

There are not many authentic accounts of the Battle of Lissa in English. As early as 1887, the British naval historian, John Knox Laughton, wrote: "There is scarcely an incident in it that is not every day misrepresented, and even the name of the victorious admiral is almost invariably misspelt. . ."

The account given here is based on Austrian, Italian, and English sources.

Barely two years after the German-Danish War had ended in 1864, the erstwhile allies, Austria and Prussia, faced one another in the Seven Weeks' War, June to August 1866. The excuse for the friction was the administration of Schleswig and Holstein, the duchies over which the preceding war had been fought. The reality was that the King of Prussia and his chancellor, Bismarck, had made up their minds that Prussia, not Austria, should play the leading role in the German Empire that was in the process of formation. To achieve that end, they were willing to go to war with Austria and to expel her from the new German state.

In preparation for the coming conflict, Prussia took advantage of the fact that Italy, having proclaimed herself a kingdom in 1861, was trying to acquire the Italian-speaking lands still under Austrian rule, and concluded an alliance with her. Most of the larger German states, such as Bavaria, Saxony, and Hanover, did not, however, relish the prospect of Prussian domination, and sided with Austria.

The Seven Weeks' War was fought on three separate fronts, in Italy, Germany, and Bohemia, but the Italian phase is the only one in which the Austrian Navy took part. Italy declared war on 20 June 1866 and hostilities on land began three days later. With a much larger army than the Austrians had in Italy, and the third strongest navy in the world, the Italians had high hopes of putting themselves in a position to wring maximum concessions from the Empire at a future peace conference.

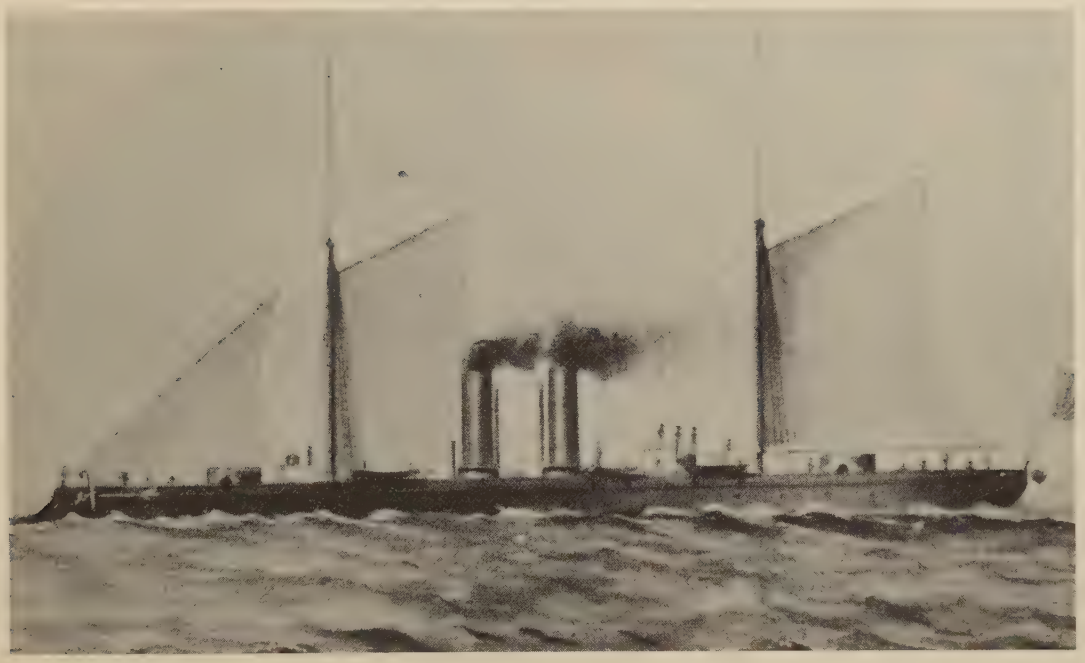
THE Italian Navy consisted of 11 armorclads, two of which were American-built. A twelfth, the ram *Affondatore,* was nearing completion in England and was soon to be delivered. There were, as well, many wooden steam vessels. The builders of the *Affondatore* based her construction on the lessons learned from the American Civil War and, according to a correspondent of *The Times* of London, she looked formidable enough to sink single-handedly the entire Austrian fleet. In this assembly of modern ships lay Italy's hope of dominating the Adriatic Sea.

The commander-in-chief of the Italian fleet was 61-year-old Admiral Count Carlo Pellion di Persano, accomplished as a politician, but undistinguished as a naval officer. In command of the Italian wooden fleet and subordinate to Persano, was the same Admiral Albini, now risen to vice admiral, who had been in command of the Sardinian fleet that blockaded the Austrians in 1848.

A DIFFERENT spectacle was presented by the Austrian fleet. Though five ironclads were afloat and two more were nearing completion at Trieste, not a single one was in service. Most of the ships, in fact, were either disarmed or undergoing repair. The wooden steam-driven ship-of-the-line *Kaiser,* 92, had been declared unseaworthy and fit for use only as a barracks, and the steam frigate *Novara,* 51, had been seriously damaged by a fire.

All the newer ships had been built in Austria, along the simplest lines, and armored with excellent Styrian iron. However, Austria lagged behind the leading industrial nations in the manufacture of modern rifled guns, and even her newer ships had old-type guns. Modern weapons were planned for the two ships being built at Trieste and were on order from Krupp's, but when the war broke out the Prussians prevented their delivery.

No one expected that the Austrian Navy would be able to play any more active a part in this war than it had in 1859 or 1848. Hence, no one was anxious to take command of the fleet, and no one begrudged Rear Admiral Tegetthoff that doubtful honor when, with war imminent, he was appointed in April 1866. He immediately set about assembling at Fasana, the roadstead of Pola, all the ships he could lay hands on, regardless of their state of readiness and of offi-



The Italian ram AFFONDATORE *was delivered in 1866 soon after the war began. During the Battle of Lissa, Admiral Persano compounded the confusion in his fleet by transferring his flag to this ship unbeknownst to his captains.*

cial reports on their seaworthiness. "Just send them as they are," he wrote, "I'll find some use for them."

Subject to repeated admonitions from Vienna not to incur unnecessary expense or, under any circumstances, to exceed the budget, and handicapped by the lethargy of his naval superiors, Tegetthoff made his fleet battle-worthy. For the two new ironclads, he found old smooth-bore 48-pounders. He improvised chain armor for the wooden vessels, had the *Kaiser* made seaworthy enough for good weather, and had the *Novara* repaired.

Although coal was allowed him only grudgingly, he held daily fleet evolutions and gun drills. He instilled his own fiery spirit into his officers, and inspired his captains with confidence by keeping them informed of his intentions. Undoubtedly, the Austrian historian Friedjung was right when he said that few wars, at sea or on land, were as greatly influenced by one man as was the sea war of 1866.

THE limited role expected of Tegetthoff and his naval force was emphasized by the restricted authority and vague instructions given him. He was subordinate to the commander of the Austrian Southern Army, and had no more authority than a division or army corps commander. He was given only one task—that of protecting the army's southern flank.

Admiral Persano, on the other hand, had clear directives and a broad mandate, which may be sum-

marized in the words of Agostino Depretis, the Italian Minister of Marine: "The Adriatic is an Italian sea, and the Austrian flag must disappear from it. Do as you think best, but this end must be attained."

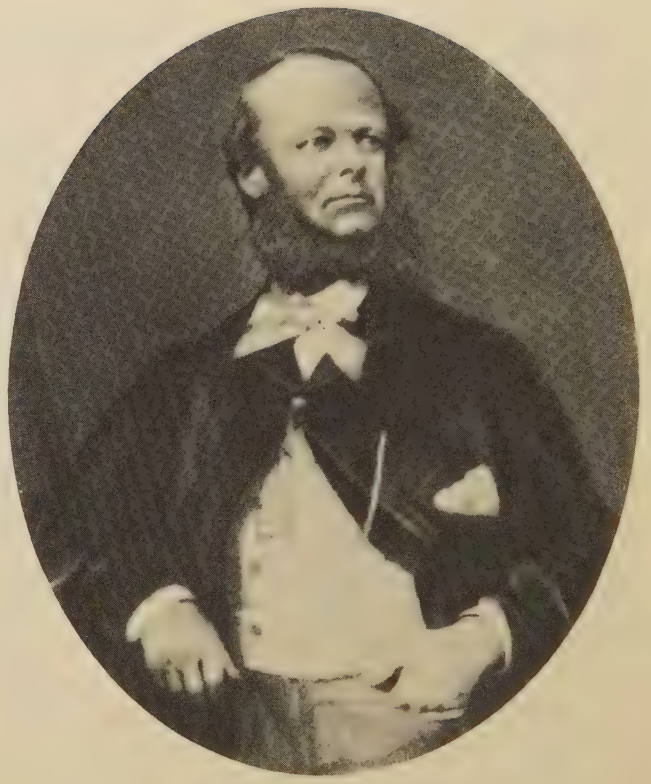
TEGETTHOFF'S ELUSIVE FOE

WITH everything in his favor, the Italian admiral was expected to lose no time in taking the offensive and appearing in the northern Adriatic. But he kept finding excuses for not steaming out from Taranto on the heel of Italy, and with the war three days old Tegetthoff's scouts probing the southern Adriatic could find no trace of the Italian fleet. At last, on the fifth day of war, Persano steamed north to Ancona, 75 miles southwest of Pola.

On 24 June, the Italian Army, 200,000 strong, was defeated at the second Battle of Custozza by an Austrian force of 75,000 men under the Archduke Albrecht. In the hope of offsetting that ignominy, the King of Italy, the Prime Minister, and the Minister of Marine began to press for naval action.

Taking the six ironclads he had been able to make ready, Tegetthoff sailed to Ancona on 27 June and there found the 11 Italian ironclads plus a number of other warships. Anxious though he was to get at them, he deemed it wiser to wait for them to come out than to go in and attack, for the harbor was well fortified and, presumably, mined.

For a couple of hours he waited. The Italian admiral had many excuses for not putting to sea. His flagship, *Re d'Italia,* had a fire in her bunkers; the



Admiral Count Carlo Pellion di Persano

Terribile had only half her complement of guns; the *Ancona* was just not battle-ready; the *Varese* and the *Palestro* were having engine trouble; there were no heavy guns on the *Carignano;* his newest ironclad, *Affondatore,* had not arrived from England; and the rest of the fleet was trying to coal.

Behind all the delay and vacillation lay the personality of the fleet commander. A poor organizer and tactician, dilatory and muddle-headed, Persano could not be persuaded that he was strong enough

to risk a fight with the Austrian fleet.

On 3 July, the Austrians were roundly defeated by the Prussians at the Battle of Königgratz, and had to pull back most of their army from Italy to defend Vienna against the advancing Prussians. In the wake of this disaster, Austria, despite her victory over Italy in the Battle of Custozza, agreed on 5 July to surrender Venetia to Italy. But the shifting of troops to the northern theater of war left South Tyrol, Trieste, Istria, and Dalmatia, which were also claimed by Italy, almost undefended against the Italian armies which tried to occupy them.

Austria's cession of Venetia to Italy presented Tegetthoff with a problem. He had some 800 Venetians serving under him and wondered if he should disembark them rather than make them fight against their own country. This was not the first time an Austrian naval commander had faced such a problem, but Tegetthoff was advised that the transfer was not yet in effect and the Venetian sailors were still subjects of Austria. They stayed with the Austrian fleet and apparently acquitted themselves as well as did the sailors from Austria proper.

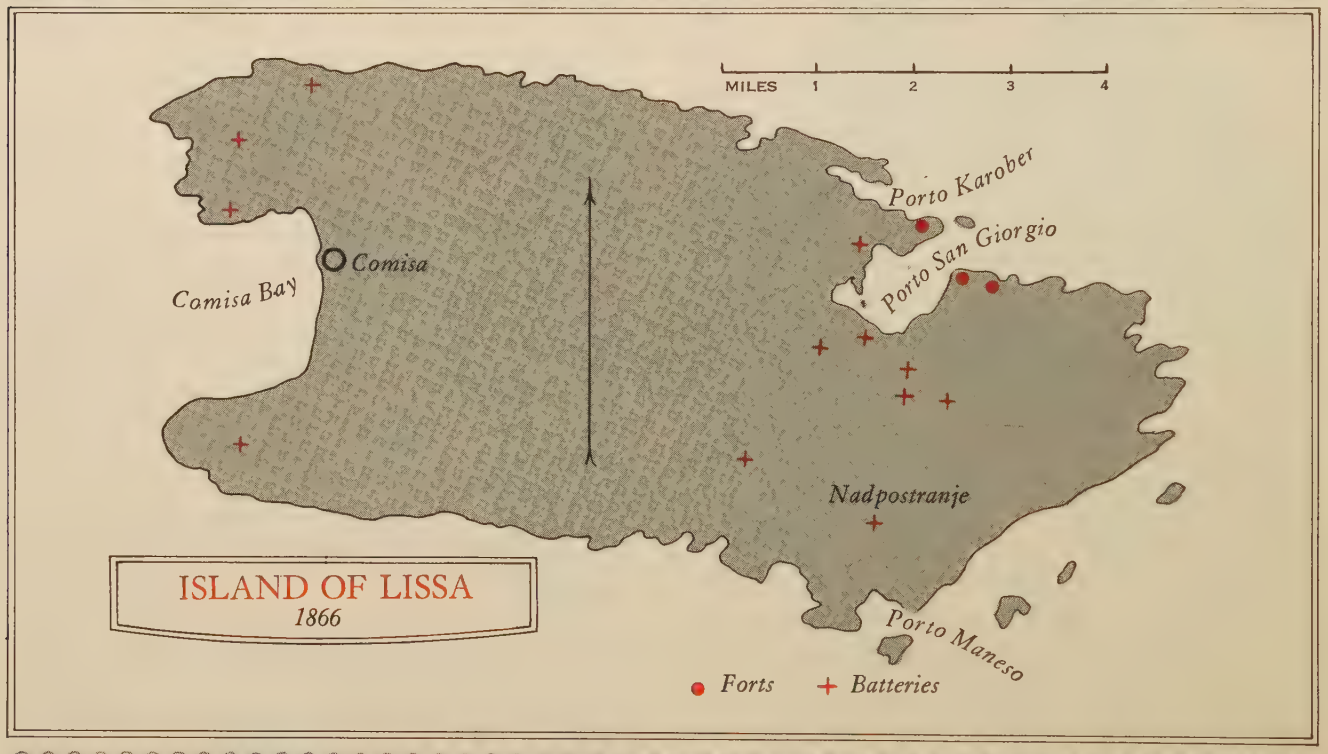
ADMIRAL Persano now had a new set of excuses: the Austrians would not meet him; Pola was impregnable; his own ships were not properly equipped; his men were undisciplined, and his officers incompetent. The powerful Italian fleet had done nothing since the defeat of Custozza, and its inactivity was having an unhappy effect upon the whole nation. Exasperated messages were sent to Persano by Depretis and Prime Minister Ricasoli. The former, obviously not wanting to be associated with the fleet's failure to act, wrote: "Would you tell the people, the people, who in their mad vanity believe their sailors to be the best in the world, that in spite of the 12 million (pounds sterling) that we have added to the debt, the squadron we have collected is incapable of facing the enemy? We would be stoned. And who has ever heard the Austrian fleet mentioned except with contempt?"

Ricasoli sent word that Italy's position at the peace conference would be seriously impaired if the Austrian fleet was not destroyed and Istria was not taken within one week.

SAYING boldly that he intended to entice the enemy into battle and to annihilate him, Persano finally put to sea on 8 July. He spent five days sailing back and forth in the middle of the Adriatic, and returned to Ancona, without once either sighting or being seen by the Austrians, who did not even know he had been to sea. A member of the Italian Chamber of Deputies who was with Persano sent back glowing reports of the fleet's activities and commented: "How cowardly these Austrians are, they will not give us a chance; they flee before us."

Italian authorities, becoming alarmed that an armistice might be concluded before Italy had won a victory, pressed harder than ever for some naval action. Persano was threatened with immediate dismissal unless he acted, and it was probably Depretis who suggested that he should be able to take the island of Lissa without much difficulty.

Although its harbor was poor, Lissa's strategic



position, from which Italy might halt Austrian seaborne traffic, would make it a good pawn for Italy to hold in the coming peace negotiations. Situated in the Adriatic some 114 sea miles from Ancona and about 143 from Pola, the island is about 11 miles long and six wide, with mountain peaks rising to nearly 2,000 feet. Its fortifications dated from the Napoleonic era, when the British had occupied it. In 1815 Lissa was ceded to Austria in exchange for the latter's renunciation of the Ionian Islands. Its Austrian garrison in 1866 numbered 1,833 men under Colonel Urs de Margina, who had 88 pieces of artillery. The main harbor of San Giorgio was not protected by either mines or barricades.

Apparently knowing little about its terrain and defenses, in spite of the fact that many of his officers must have served previously in the Austrian Navy and known Dalmatia well, Persano set out from

Ancona on 15 July. His plan seems to have been to distract the island's defenders by bombarding at two points while landing troops at two others. For this purpose he had requested a minimum of 5,000 infantrymen, but he had to set sail with only 600, all embarked in the wooden vessels under the command of Vice Admiral Albini.

BATTLE IS FINALLY JOINED

SAVING alerted the defenders of Lissa to the possibility of attack by sending a scout steamer under a British flag ahead of him, he arrived before the island on 17 July, after a very slow passage. His first action was to send gunboats to cut the telegraph cable between Lissa and the mainland so that news of his attack could not reach Pola. But the operation was carried out so slowly that it did not achieve its purpose. Nor was the cable the only means of communication the Austrians had. A signal station on a nearby island was keeping Tegetthoff informed.

Next morning the entire Italian fleet began a heavy bombardment of the island's fortifications. The *Re d'Italia* alone fired 1,300 rounds on that first day. Many of the Austrian gun emplacements were on high ground, however, and the Italians wasted many shells in their efforts to reach them. The small guns of the defenders, in turn, made little impression on the Italian armored ships and when evening came the Austrians were beginning to weaken.

Instead of taking advantage of the situation and pressing home his attack, Persano withdrew his fleet and sent a message to Ancona to the effect that he had conquered "the Gibraltar of the Adriatic," and that all he needed was more troops so that he could make a landing.

The long-awaited *Affondatore* arrived at Lissa the following day, 19 July, along with several other ships bringing 600 additional infantrymen. With the 600 already there and 1,000 men from his ships' crews who could be used as landing troops, this gave Persano a landing force of 2,200 men.

He promptly ordered the shelling of the gun emplacements defending San Giorgio Harbor and sent the ironclad *Formidabile* in to take it. While this was going on, the troops embarked in Albini's wooden vessels were to make a landing nearby. But Persano did not realize that his withdrawal the evening before had given the defenders time to recoup. The attempt to take the harbor met violent opposition. The *Formidabile* was set on fire and her damage and casualties were so heavy that she and her supporting ships had to disengage, leaving her anchor and chain to the triumphant defenders. Albini did not land his troops. Night approached, the wind stiffened, and Persano called off the operation.

By that time, the Austrians had only 15 guns left for the defense of San Giorgio. Twenty-four Austrians were dead, and 70 wounded. Italian casualties amounted to 16 dead and 96 wounded. Several of their ships had been severely damaged, and many of them were running out of coal. When morning came things looked even worse. The wind was high, the seas heavy, and visibility poor. Nevertheless, he decided once again to go ahead with the landings. Then, at 0750, his scout vessel *Esploratore* signaled: "Suspicious vessels WNW."

Tegetthoff was coming.

In the months that Tegetthoff had been waiting

for a chance to get at the Italian fleet, he had not been idle. He had been exercising his fleet ever since he took command in April. Knowing that he would be heavily outgunned, he drilled his gunners in concentrated firing at one point of a target, so that the combined impact would compensate for the light weight of each charge. As further compensation, he intended to do as much close-quarters fighting as possible and to make the best use of the ram.

To shorten the time his own ships would be exposed to enemy fire, he planned to approach the enemy at a right angle in three successive wedges, with the leading wedge consisting of his ironclads. Also, to distinguish them from the gray enemy ironclads in the smoke of battle, he had had his ships painted black, except for the funnels, which were of different colors for ease of identification. Tegetthoff told his commanders: "When we get into the fight, ram anything in gray."

Tegetthoff tried to prepare for any eventuality, including his own death. His officers were instructed that if he should die, his flag captain, who was thoroughly briefed on Tegetthoff's intentions, was to take command, but for the sake of morale, the dead admiral's flag was to continue to fly.

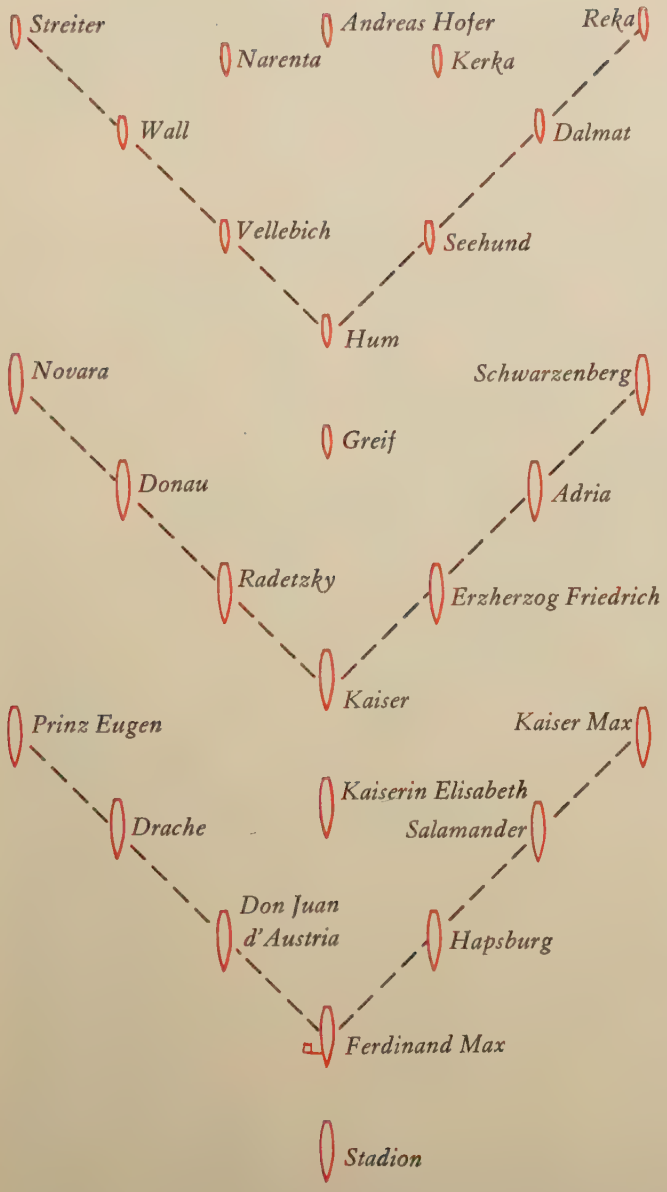
WHEN the Austrian commander heard that Lissa was being attacked, he thought it was a feint intended to lure him away from Pola and leave Trieste undefended. But when it became clear that the assault was real, he requested the commander of the Austrian Southern Army for permission to go to Lissa. By the time he got permission and the authority to use his own judgment, Tegetthoff was already on his way.

At 1400 on 19 July, the same day the *Affondatore* arrived at Lissa, the Austrian fleet sailed from Pola. Bad weather and heavy seas prevented it from averaging more than 5.5 knots and it looked as though the weather would make it impossible for some of the ships to fire their guns.

THE next morning at 0700, almost an hour before the *Esploratore* signaled the approach of suspicious vessels, the Austrian scouts, the steamer *Stadion* and the ironclad *Kaiser Max,* reported that they had sighted the enemy.

Admiral Persano seems to have made no preparations to meet an enemy fleet, and is supposed to have exclaimed when he saw the Austrians, "Ecco i pescatori!" ("Here come the fishermen").

Persano began to signal his scattered ships and, amidst the most terrible confusion, form them into a column steering northwest with about a mile and a half between the first armored ship and the last, but stragglers made it twice as long. He had only nine ships, for the *Formidabile* had gone back to Ancona for repairs and ammunition, and the *Terribile* and *Varese* had been allowed to wander far to the south. He directed Albini to break off the landing operations he had begun, abandon the landing craft, leave the men already ashore to be rescued by gunboats, and join the action. But Albini kept his squadron at a safe distance from the fight that ensued and later claimed never to have received Persano's order. It was later suggested that he did re-



BATTLE FORMATION OF THE AUSTRIAN FLEET

ceive it but did not comply because he was against wooden vessels getting entangled with armored ships.

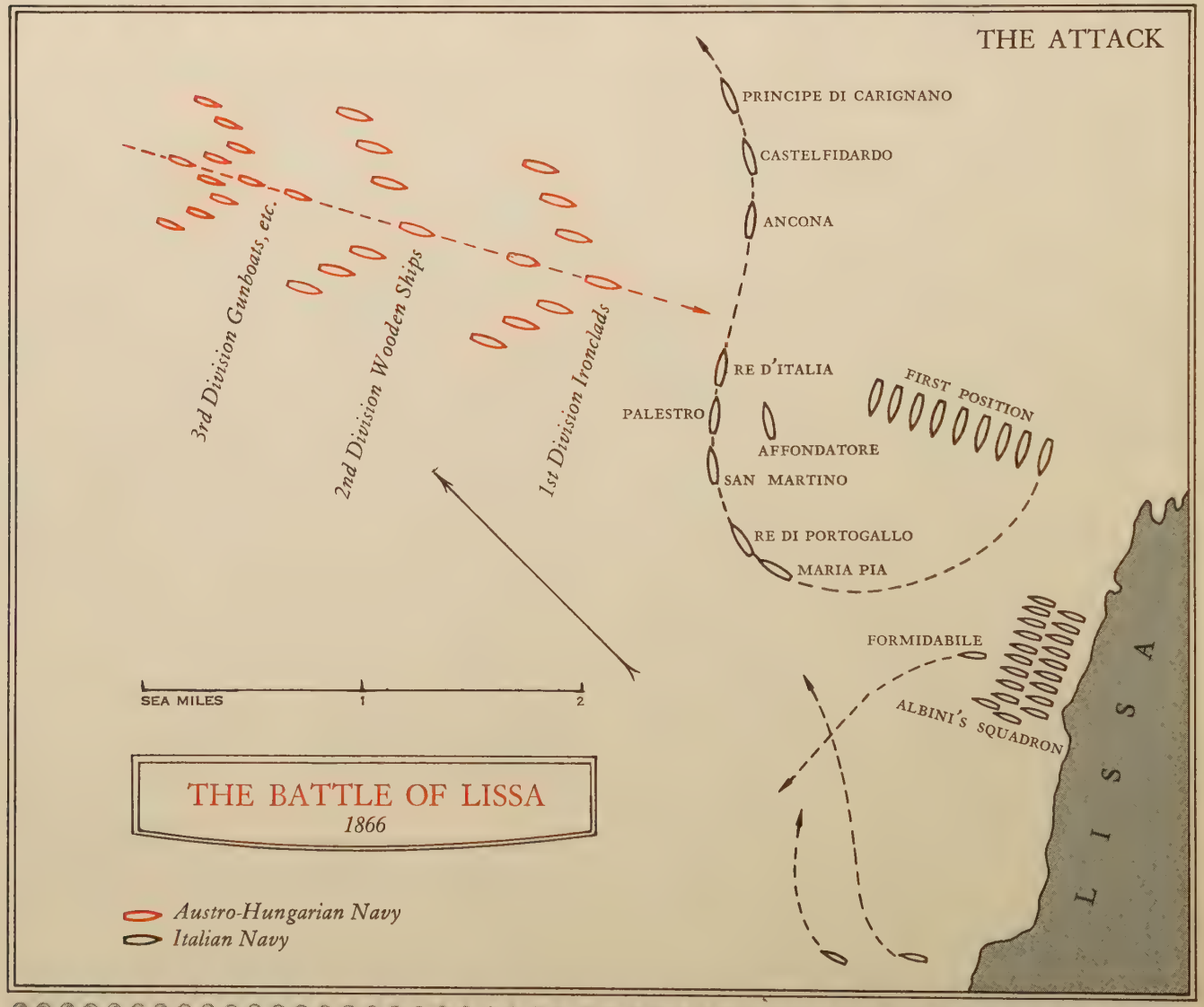
About 0900, after a heavy rain squall hid the opposing fleets from one another, the wind began to moderate and the sea to calm, and by 1000 it was clear enough for the Austrians to see both the Italian fleet and the still-defiant island of Lissa. (Had the island fallen by the time he got there, Tegetthoff intended to go right into the harbor of San Giorgio and attack the Italians there.)

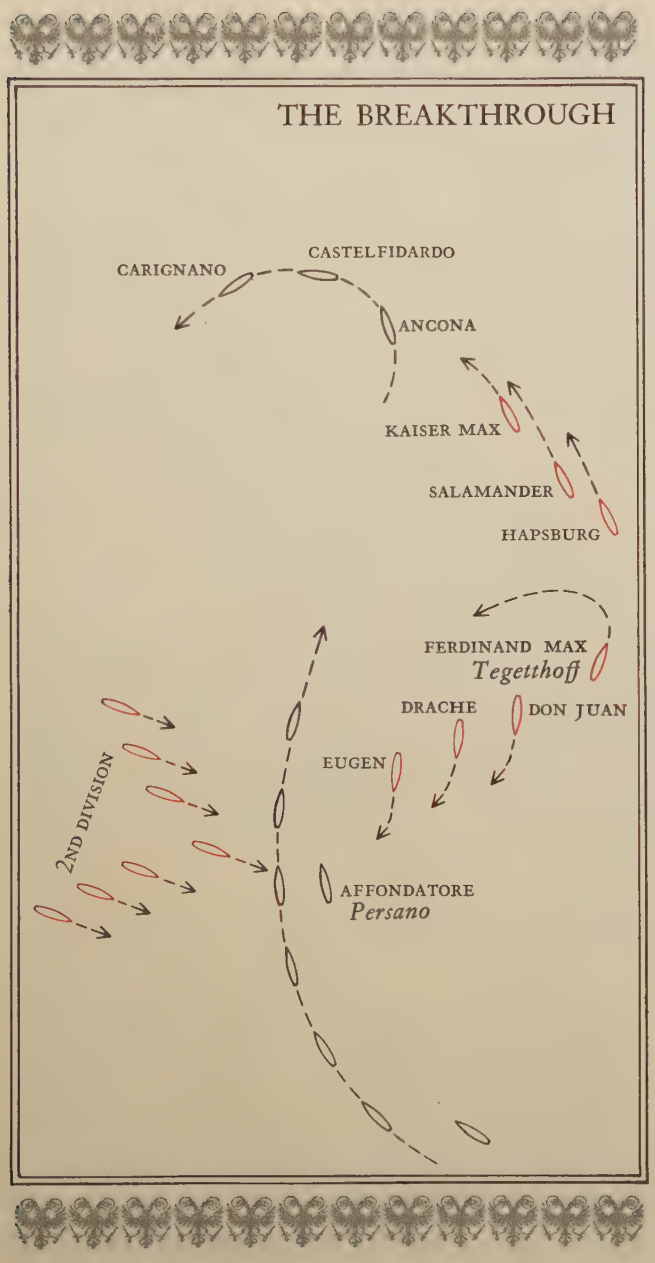
Tegetthoff signaled for full speed, about 10 knots, and ordered his ironclads to ram. He prepared a signal urging his men on to victory, but before it could be bent on, the two fleets had joined battle.

The Italians opened fire at 1045, and one of their first salvos decapitated the captain of the small ironclad *Drache,* Captain von Moll. The *Drache* continued to fight under the command of Lieutenant Karl Weyprecht, who later became famous for his Arctic explorations.

AS the fleets closed, Persano decided to transfer his flag from the *Re d'Italia,* which was in mid-column, to the *Affondatore,* but did not tell his fleet that he was doing so. Since the *Affondatore,* in whose conning tower he spent the rest of the battle, had no admiral's flag aboard, the other ships did not know where he was and were, in effect, leaderless.

When the *Re d'Italia* stopped to transfer the admiral, the commander of the Italian van, Rear Admiral Giuseppe Vacca, not knowing that anything was going on, continued to steam ahead, leaving a


THE ATTACK
PRINCIPE DI CARIGNANO
CASTELFIDARDO
ANCONA
RE D'ITALIA
PALESTRO
AFFONDATORE
SAN MARTINO
RE DI PORTOGALLO
MARIA PIA
FIRST POSITION
FORMIDABILE
ALBINI'S SQUADRON
3rd Division Gunboats, etc.
2nd Division Wooden Ships
1st Division Ironclads
SEA MILES
1
2
LISSA
THE BATTLE OF LISSA
1866
Austro-Hungarian Navy
Italian Navy



big gap in the Italian line. Smoke from gunfire and coal enveloped the area and the Austrians did not see what had happened either. Seeking targets to ram, they sailed right through the gap. They did not find any targets, but did unwittingly cut the Italian line in two.

The wooden Austrian ships were instructed to seek out and deal with their Italian counterparts, while Tegetthoff and his armored division handled the Italian ironclads. Before the plan could be set in motion, Rear Admiral Riboty brought up the rear of the Italian line. Riboty and his three ironclads had not yet begun to shoot when the *Affondatore* fired her 300-pounders at the scout steamer *Kaiserin Elisabeth*. She missed the *Elisabeth* and turned her fire on the *Kaiser,* flagship of the wooden division under Commodore Anton von Petz, and the frigates accompanying her. Although a heavy shell hit the *Kaiser* and killed a number of men, the *Affondatore* turned away when the *Kaiser*'s wooden companions began firing on her.

BY this time, Riboty in his flagship *Re di Portogallo* was in position to attack both the wooden *Erzherzog Friedrich* and the *Kaiserin Elisabeth*. Without hesitation, Petz rammed the *Re di Portogallo* and saved the smaller ships from almost certain annihilation. Although the *Re di Portogallo* turned and avoided the full force of the collision, she was seriously damaged. The *Kaiser* suffered more: the shock of the impact carried away her stem and bowsprit; her figurehead fell onto the deck of the *Re di Portogallo;* her foremast was shat-

tered and, as it crashed, swept away her funnel; her upper deck was a sea of flame and swirling smoke and, as she scraped alongside her opponent, she took a broadside from the 300-pounders of the *Re di Portogallo*. Chaos reigned, but the *Kaiser* kept on firing until the *Re di Portogallo* disengaged.

RIBOTY's ships had not yet finished with the *Kaiser,* and as she battled her raging fires, another ironclad, probably the *Maria Pia,* began to pound her. Her condition became so critical that Petz decided to take her out of the battle and, followed by the other wooden vessels, he broke off the action and steamed towards San Giorgio.

As he did so, the *Affondatore* approached again and tried several times to ram Petz's flagship. When it looked as though she could not miss again, the *Kaiser*'s boarding parties were given sacks of powder to hurl into the *Affondatore*'s funnels. The crew of the *Affondatore* was also braced and ready for the shock of impact, when suddenly, at Persano's order, she altered course away from her quarry. Her captain and Persano's chief of staff begged to be allowed to finish off the *Kaiser,* but the order to withdraw was not reversed, and the *Kaiser* made harbor without further molestation. Her protecting escort returned to the battle.

It may be that Persano ordered the *Affondatore* to give up the attack because he saw Austrian ironclads coming to the *Kaiser*'s rescue. Or he may have done so because he was afraid that, if the two ships made contact, the low-slung *Affondatore* would bring the heavy *Kaiser* down on top of her, and both vessels would go down.

Meanwhile, Teggetthoff turned his armorclads around to attack once again and the melee that developed makes it hard to follow the movements of individual ships.

Several actions, however, do stand out.

The Austrians tried repeatedly to ram enemy vessels, and Tegetthoff's flagship, *Erzherzog Ferdinand Max,* did ram the *Palestro* but the blow was a glancing one. The only damage it did was to bring down the *Palestro*'s mizzen-topmast and gaff flying the Italian tricolor and they fell across the deck of the Austrian. The *Ferdinand Max* tried a similar blow at the *Re d'Italia,* again with little effect.

At 1120, about the time the *Kaiser* was ramming the *Re di Portogallo,* Captain Max von Sterneck, commanding the *Erzherzog Ferdinand Max* from half-way up the mizzen rigging, saw the *Re d'Italia* crossing his bow. Captain Faà di Bruno in *Re d'Italia* must have simultaneously sighted the Austrian bearing down on him, and tried to avoid the collision. However, the Italian had lost steering control, probably when she was struck earlier by the *Ferdinand Max*. Another Austrian ship barred his path and di Bruno, choosing not to ram, reversed his engines. Momentarily, his ship was at a standstill. In that instant, Sterneck drove the 5,000-ton *Ferdinand Max* full speed into the port flank of his motionless prey and tore an enormous hole in her hull.

The impact of the ram sent the *Re d'Italia* rolling over on her disengaged side, but when Sterneck backed his ship out of the hole, she rolled heavily to port, giving the Austrians a clear view of her deck and terrified crew. A sailor in the *Re d'Italia* tried to haul down the flag but was prevented by an officer and within two minutes she and most of her

The Re d'Italia *begins to roll over as Max von Sterneck backs the* Erzherzog Ferdinand Max *out of the hole he has torn in the side of the Italian ship.*

complement went down with her flag still flying. Captain di Bruno is said to have shot himself before going down with his ship.

A minute of silence followed the disappearance of the Italian battleship. Then, a cheer went up from the Austrians. Tegetthoff lowered the only boat in the *Ferdinand Max,* and sent the *Kaiserin Elisabeth* to pick up survivors. Italian ships in the vicinity, unaware of what had happened, began firing on the *Kaiserin Elisabeth* and she took four hits before being forced to abandon her mission.

Meantime, other ships in the melee had been exchanging intensive gunfire. The armored gunboat *Palestro* was struck in her unprotected stern by Austrian shells, caught fire and had to withdraw from the battle. About noon, an hour and one-quarter after the battle had begun, Persano tried to re-form his line. But the last shots had been fired.

AS his ships drew away from the Austrians he admonished his fleet to fight at close quarters and reminded them that any ship not fighting was not in the right place. Yet, he himself did not seem to make any effort to close with the enemy.

Several Italian ironclads signaled that they could not keep station. The *Palestro* reported that the fire on board was under control, but at 1430 she exploded and disappeared. Every one of the Italian ironclads had suffered some damage, and only seven of the original 12 were still in fighting condition. The wooden ships under the command of Admiral Albini suffered some damage during the attack on Lissa, but they were the only Italian vessels to emerge unscathed from the battle with Tegetthoff's fleet: they had been mere onlookers.

In spite of the fact that even its small gunboats and paddle-wheelers had been in close action with powerful armorclads, the Austrian fleet suffered very little damage and, with the exception of the *Kaiser,* was still battle-ready. The reason more dam-

The wooden ship-of-the-line KAISER *after the battle. As did the* SCHWARZENBERG *two years earlier the* KAISER *lost her foremast and bowsprit.*

age was not done may have been that in their excitement the Italians often failed to load their guns before firing them.

Tegetthoff regrouped his ships into three columns, with the ironclads to seaward nearest the enemy. The two fleets now had reversed their positions: the Austrians were between Lissa and the enemy. For several hours the fleets cruised within sight of one another, but the Italians moved gradually farther away from Lissa. Tegetthoff realized there was no hope of drawing them into action again. So, with his slower fleet putting pursuit out of the question, he sailed into San Giorgio Harbor, where the *Kaiser* was repairing her damage.

Tegetthoff's work was done. The Italian fleet had been defeated and Lissa was saved.

It was not until 1600 that Admiral Persano signaled his fleet to ask where the *Re d'Italia* was, and received the news of her sinking. He returned to Ancona that evening and reported that he had won a great victory. He based this claim on the fact that he had "held his ground" for several hours after the engagement had ended.

AFTERMATH

THERE is no doubt about the material superiority of the Italian over the Austrian fleet at Lissa. In his book, *Battleships in Action,* H. W. Wilson quotes an Austrian staff estimate as follows:

". . . . the Italians had in ships 1.99 to the Austrian 1; in guns 1.66 to 1; in tonnage 2.64 to 1; in horse power 2.57 to 1."

John R. Hale, in *Famous Sea Fights,* taking into account only the number and caliber of rifled guns on the ironclads—the ones that were supposed to be decisive in battle—gives the Austrians 1,776 pounds of shells against 20,392 for the Italians.

The Italians lost 612 officers and men, most of whom were in the two ironclads that were sunk; almost all of the 38 Austrian dead were in the *Kaiser,* and two of them were ship captains.

Persano has been criticized for awaiting the Austrians in column, the customary tactical arrangement of battleships in the era of sail, but supposed to be incorrect for the conditions of his time. However, in view of his great superiority in fire power and speed, the column would seem to have been the most logical formation, since it allowed the development of full broadsides against approaching enemy ships, which could reply only with end-on fire. But a suitable formation does not by itself bring victory. Preparation, a clear plan of action, a commander with an aggressive spirit, and high morale in the fleet are at least equally important and, while there was no lack of individual bravery among the Italians at Lissa, those factors were missing.

Admiral Persano was tried on charges of incompetence, negligence, disobedience, cowardice, and treason. Convicted on all but the last two of these counts, he was deprived of his rank and both he and Admiral Albini were dismissed from the Navy.

Admiral Tegetthoff took his ships back to Pola the day after the battle. No one had expected a victory of the magnitude achieved, and the news of it helped to dispel the gloom created by the defeat at Königgratz a little more than two weeks previously. Further, it secured the Austrian Army in Italy against a flanking attack from the sea and foiled

Italian attempts to occupy and claim Dalmatia, Istria, Trieste, and South Tyrol.

Appointed vice admiral by his Emperor, Tegetthoff was showered with honors. Perhaps the one that he valued most was a letter from his former commander-in-chief, Emperor Maximilian of Mexico, saying: ". . . the glorious victory which you have gained over a brave enemy, vastly superior in numbers and nurtured in grand old naval traditions, has filled my heart with unmixed joy . . . with the victory of Lissa your fleet becomes enrolled amongst those whose flag is the symbol of glory, and your name is added to the list of naval heroes of all time. . ."

THE outside world, especially England, did not immediately accept the Battle of Lissa as a victory for Austria. Fantastic reports from Italian sources were circulated and believed. For instance, many Italian officers reported that they had seen the *Kaiser* sink and another Austrian vessel sinking. Some went so far as to say that eight Austrian ships had been lost. Then there was a widely believed story that the Austrian ships had been manned by Americans. The true story was not accepted abroad until foreign correspondents investigated the facts.

A few days after the battle, the *Affondatore* sank at Ancona during a sudden gale. Whether she was a battle casualty is uncertain, but her plates might have been loosened by Austrian gunfire. In any case, she was later raised and returned to service.

There were some minor naval incidents in the war. One of them took place south of Trento on Lake Garda, when the Austrian lake flotilla, consisting of six gunboats and two paddle-wheel steamships, commanded by Lieutenant Commander Manfroni von Monfort, bombarded Garibaldi's troops and chased them away. Austrian gunboats constantly shelled the only practicable road around the lake and prevented Italian troops from using it. The Italians also had six gunboats and one steamer on the lake, but though their 40-pounders were heavier than the Austrian artillery, they sat idle while the action took place. The Austrians also succeeded in capturing the armed Italian steamer.

The Battle of Lissa was followed by an armistice, and then the Peace of Vienna with Italy and the Peace of Prague with Prussia. By the terms of these treaties Austria ratified her cession of Venice to Italy, but kept all her other provinces. The German Confederation was replaced by the North German Confederation, in which Austria had no part.

SIENNESE treasury officials did not, apparently, allow themselves to be carried away by Tegetthoff's victory to the point of loosening the purse strings. When he gave his captains a victory party aboard the *Kaiser* and charged it against the naval budget, the Ministry of Finance deducted a sum from his salary each month until he had repaid the cost.

Tegetthoff went abroad after the war, on official visits to England, France, and the United States. While he was away, Maximilian was executed in Mexico. and Tegetthoff was called home and given the painful task of taking the *Novara* to Mexico to bring back the body.

Vice Admiral Tegetthoff

In 1868, Tegetthoff was made commander-in-chief of the Austrian Navy. In that capacity, he worked out plans for the future development of the Navy, but once again government parsimony prevented their full implementation. Then, after a short illness, he died in 1871, at the age of 44 years. With his passing, Austria lost not only a great naval leader, but a figure with political potential, a commodity then in desperately short supply.

The sea war of 1866 was unusual in that there were none of the strategic features normally connected with warfare at sea. There was no blockading, no commerce raiding, no general attempt to gain command of the sea. A blockade of Italy was out of the question, and Austrian maritime trade also seems to have continued unhindered. The clash between the fleets involved no real naval objective, but stemmed from a diplomatic need felt by Italy. Tegetthoff's victory at Lissa frustrated for half a century Italian hopes of gaining control of both coasts of the Adriatic.

The limited approach to naval operations demonstrated in this war had strong influence on the thinking and future behavior of the fleets involved. Both navies thought of naval warfare chiefly in terms of protecting their own coasts. It was not until the development of submarine warfare during World War I that either of them made any systematic attempt to interfere with the maritime commerce of the other.

While the events of 1866 established an Austrian naval tradition of fighting regardless of the odds, they also gave birth to the harmful idea that, irrespective of the material condition of the Austrian Navy, a genius would arise when needed and make up for its shortcomings. In the event, that did not happen again. But this delusion, coupled with the usual difficulty of getting funds, led once again to the neglect of preparation for war.

ORDER OF BATTLE OF THE ITALIAN FLEET AT THE BATTLE OF LISSA

Commander-in-Chief, Admiral Carlo di Pellion Conte di Persano

FIRST SQUADRON (Ironclad) — Admiral Persano	RE D'ITALIA flagship	Armored frigate	5,700 tons
	RE DI PORTOGALLO	Armored frigate	5,700 tons
	MARIA PIA	Armored frigate	4,250 tons
	SAN MARTINO	Armored frigate	4,250 tons
	ANCONA	Armored frigate	4,250 tons
	CASTELFIDARDO	Armored frigate	4,250 tons
	MESSAGERO	Paddle-wheel scout	1,000 tons
SECOND SQUADRON (Wooden) — Vice Admiral Giovanbattista Conte Albini	MARIA ADELAIDE flagship	Frigate	3,459 tons
	DUCA DI GENOVA	Frigate	3,515 tons
	CARLO ALBERTO	Frigate	3,200 tons
	GAETA	Frigate	3,980 tons
	GARIBALDI	Frigate	3,680 tons
	PRINCIPE UMBERTO	Frigate	3,501 tons
	VITTORIO EMANUELE	Frigate	3,415 tons
	SAN GIOVANNI	Corvette	1,780 tons
	GUISCARDO	Corvette	1,400 tons
THIRD SQUADRON (Ironclad) — Rear Admiral Giuseppi Vacca	PRINCIPE DI CARIGNANO flagship	Armored frigate	4,086 tons
	AFFONDATORE	Armored ram	4,070 tons
	TERRIBILE	Armored corvette	2,700 tons
	FORMIDABILE	Armored corvette	2,700 tons
	PALESTRO	Armored gunboat	2,000 tons
	VARESE	Armored gunboat	2,000 tons
	ESPLORATORE	Paddle-wheel scout	1,000 tons
FLOTILLA — Attached to First Squadron	VINZAGLIO	Gunboat	262 tons
	MONTEBELLO	Gunboat	262 tons
	CONFIENZA	Gunboat	262 tons
	SIRENA	Scout	?
		Transport steamers	

Total: 12 armored ships, 14 wooden ships, 5 scouts, 3 transports; 86,022 tons, 14,160 horsepower, 645 guns (of which ca 300 were rifled, from 6 to 10 inches bore), 10,886 men. Austrian reports mention several other minor vessels not contained in Italian lists.

ORDER OF BATTLE OF THE AUSTRIAN FLEET AT THE BATTLE OF LISSA

Commander-in-Chief, Rear Admiral Wilhelm von Tegetthoff

FIRST DIVISION (Ironclad) Rear Admiral Tegetthoff	ERZHERZOG FERDINAND MAX flagship	Armored frigate 1st cl.	5,130 tons
	HABSBURG	Armored frigate 1st cl.	5,130 tons
	KAISER MAX	Armored frigate 2nd cl.	3,588 tons
	PRINZ EUGEN	Armored frigate 2nd cl.	3,588 tons
	DON JUAN D'AUSTRIA	Armored frigate 2nd cl.	3,588 tons
	DRACHE	Armored frigate 3rd cl.	3,065 tons
	SALAMANDER	Armored frigate 3rd cl.	3,065 tons
	KAISERIN ELISABETH	Paddle-wheel scout	1,470 tons
SECOND DIVISION (Wooden) Commodore Anton von Petz	KAISER flagship	Line-of-battle ship	5,194 tons
	NOVARA	Frigate 1st class	2,497 tons
	FÜRST FELIX SCHWARZENBERG	Frigate 1st class	2,514 tons
	GRAF RADETZKY	Frigate 2nd class	2,198 tons
	ADRIA	Frigate 2nd class	2,198 tons
	DONAU	Frigate 2nd class	2,198 tons
	ERZHERZOG FRIEDRICH	Corvette	1,474 tons
	GREIF	Paddle-wheel scout	1,260 tons
	STADION (unarmed)	Scout steamer	1,400 tons
THIRD DIVISION (Gunboat) Commander Ludwig Eberle	HUM flagship	Gunboat	869 tons
	DALMAT	Gunboat	869 tons
	VELLEBICH	Gunboat	869 tons
	WALL	Gunboat	852 tons
	REKA	Gunboat	852 tons
	SEEHUND	Gunboat	852 tons
	STREITER	Gunboat	852 tons
	NARENTA	Schooner	501 tons
	KERKA	Schooner	501 tons
	ANDREAS HOFER	Paddle-wheel scout	770 tons

Total: 27 vessels, 57,344 tons, 10,360 horsepower, 532 guns (of which 115 were rifled 24-pounders or about 4-inch bore), 7,871 men.

WARSHIPS AT REST, 1880

Painting by Alex Kircher

CHAPTER V

Quiet Interlude 1866-1897

EXCEPT FOR A BRIEF PERIOD IN the 1860s when the Ministry of Marine established by Archduke Ferdinand Max was in existence, the Austrian Navy was administered by a section of the Ministry of War called "K.u.K. Kriegsministerium, Marinesektion," with headquarters in Vienna. As a rule, its head was also commander-in-chief of the Navy. There are advantages in having administrative, strategic, and tactical direction all vested in one person, but the disadvantage is that few men have a talent for all three functions.

It was fortunate for Austria that her greatest naval leader was also an able administrator. During his term of dual office, Vice Admiral Tegetthoff made changes and introduced reforms that were still in force some 50 years later. But his demand for the re-establishment of an independent Ministry of the Navy went unheeded, and his efforts to build up the Navy to the strength he considered necessary were not successful.

His recommendation for a fleet of 15 armored vessels, with corresponding auxiliaries, would have meant the addition of eight ironclads over a period of ten years. But the perennially bad financial state of the Habsburg Monarchy, and the situation within the government, which was not favorable to the Navy, made even that modest program impossible. Not even the opening of the Suez Canal could convince those who held the Monarchy's purse strings that a great power without a strong navy was no world power. When Tegetthoff died in 1871, the Austrian fleet had acquired only three new armored ships through his efforts.

After his death, the Austrian Navy gave up all pretense of being a first-class naval force and lapsed into a semi-dormant state. Tegetthoff was succeeded by Vice Admiral Friedrich von Pöck (sometimes spelled Pöckh), who had been the former's chief antagonist within the Navy. It was said that von Pöck wanted to command, not a fleet, but an Army corps, and he certainly did little to develop the Navy. During his 11-year administration, a few old ships were modernized but only one armored ship, the *Tegetthoff,* was built.

THE SUEZ CANAL

IT seems strange that the Habsburg Monarchy should have neglected her navy at the very time when the opening of the Suez Canal appeared to broaden the horizons for Austrian maritime trade. Emperor Francis Joseph emphasized the importance Austria attached to the Canal by attending the opening ceremonies in 1869.

The Suez Canal made the port of Trieste a practical transfer point for passengers and cargo going from northern Europe to India and the Far East. Such travelers could save weeks of travel time and avoid the frequently rough weather of the North Sea and Atlantic by taking a train across the continent to Trieste and going the rest of the way by ship. The distance from Hamburg to Port Said is 3,500 miles; from Trieste to Port Said is only 1,300 miles. Opportunities such as this should have been apparent to Admiral Wüllerstorff-Urbair who had been Minister of Commerce since 1865, and they should have stimulated the growth of the Navy. Yet, neither Austrian maritime commerce nor shipbuilding kept pace with the steadily growing demand for transportation. Between 1850 and 1870, the total tonnage of Austrian steamships rose almost sixfold, from 8,600 to 48,000. But from the opening of the Canal to the end of the century, it increased only to 79,000 tons.

As things turned out, the Suez Canal had a disastrous effect on Austria's maritime position. One reason for this was that Austria had a large fleet of sailing ships which, on account of the seamanship of Dalmatian sailors, enjoyed a good reputation. The operation of these ships had been profitable, but the high cost of being towed through the Canal made it impossible for them to compete with steamers on the Asian route. If the Austrian government had had a farsighted and liberal policy of subsidizing the change-over from sail to steam, the problem could have been solved and Austria could have maintained her head start. But nothing was done, and most of the Dalmatian shipping lines went bankrupt.

DUAL MONARCHY

ANOTHER reason for the neglect of the Service that had just strikingly demonstrated its value to the Empire was domestic politics in the Habsburg realm. Following Prussia's defeat of Austria at Königgratz in 1866, the Austrian Emperor had to accede to Hungarian demands for far-reaching autonomy. The Compromise (Ausgleich) concluded in 1867 split the Habsburg Monarchy into two almost independent parts: the Empire of Austria and the Kingdom of Hungary. Each part of the new dual state, henceforth called the "Austro-Hungarian Monarchy," had its own parliament and government. Apart from the person of the ruler, the only areas of government they had in common were foreign affairs, army, navy, foreign trade, and customs.

These common interests were handled by a "delegation" consisting of 60 members of the Austrian parliament and 60 members of the Hungarian parliament, which met once a year, either in Vienna or Budapest. The Hungarian delegates often demanded economic concessions in return for their affirmative votes on appropriations. For example, they would approve naval budgets only on condition that some

His standard at the main truck of the royal yacht, Emperor Francis Joseph attends the opening of the Suez Canal in 1869. Austrian ironclads to the left are firing their salutes.

of the ships be built in Hungary. Since Hungary, at the time, had no shipbuilding facilities, this meant that such facilities must first be built, with attendant expense and delay.

Besides the joint Navy and Army, in both of which the Emperor insisted that German be retained as the language of command, each half of the realm maintained a territorial army, called Landwehr in Austria, and Honved in Hungary. The Landwehr and the Honved were trained in the same way as the joint Army, but were not as well equipped and used different languages of command. In wartime, they were integrated with the joint Army. Austria-Hungary was one of the last European states to introduce universal military service, in 1868. Most recruits went into the joint Army or Navy, and the rest into the territorial forces.

IN 1889 this division in the military establishment of the Dual Monarchy expressed itself in different designations for the various Services. The joint Army and the joint Navy were described as "K.u.K." (Kaiserlich und Königlich) or in English, "I. and R." (Imperial and Royal). The Austrian Landwehr was called "K.K." (Kaiserlich Königlich or Imperial Royal), and the Honved was "K.U." (Königlich Ungarisch or Royal Hungarian), or "M.K."

(Magyar Kiraly or Royal Hungarian). Since 1848 British naval usage had been followed and naval vessels were designated S.M.S. (Seiner Majestät Schiff or His Majesty's Ship).

The political arrangements made agreement on matters of joint interest, such as naval appropriations, exceedingly complicated. It was fortunate for Austria-Hungary that there were no major wars in the last part of the century, as the Navy would not have been prepared for them.

It was not until 1895, under the impact of Mahan's naval doctrines, that a build-up of the Austro-Hungarian Navy began. Nevertheless, there were several events of general maritime interest during the slack years after the death of Tegetthoff.

NEW SHIPS

THE three armored ships laid down during Tegetthoff's administration were of the "casemate" or central battery type which, compared to the old broadside running almost the full length of the ship, allowed the expanse of armor protecting the heavy guns to be reduced and its thickness to be increased. This arrangement also allowed for more powerful end-on fire, considered essential after the experience at Lissa. The 7,800-ton *Tegetthoff,* launched in 1878, had her guns so disposed and was, at the time of her launching, widely praised as an outstanding example of warship construction.

In time, the citadel ships were replaced by ships whose guns were mounted in barbettes or turrets. The first two Austrian turret ships were the *Maros* and *Leitha*, built for the Danube Flotilla in 1871. Austria-Hungary did not build seagoing ships of that type until 1887, when two of them were ordered, and they were small and rather inefficient.

THE TORPEDO

ATTEMPTS to construct a device that would be carried to an enemy vessel and would explode on contact had been made both before and after 1860. One such attempt was mentioned in connection with the Austro-Italian wars of 1848-1849. Most mid-nineteenth century "torpedoes" had to be towed by a boat or fixed to a long spar. Although such contraptions scored several successes in the American Civil War and the Russo-Turkish War of 1878, they were dangerous to the attacker and showed no promise of improvement.

Ever since the fiasco of 1859, when the Austrian Navy had been unable to fight the French fleet that came into the Adriatic, Austrian Commander Johann Luppis had been trying to develop a self-propelled weapon. At first, he was thinking of a mobile mine, to be directed from the beach and he got as far as constructing a model, which he called a "coast saver." Later, he took his idea to Robert Whitehead, a British engineer and director of a machine factory at Fiume. Whitehead worked on it and, after a while, developed the first really automotive torpedo, in which there was little left of Luppis' original plan except the basic concept. Soon, most of the navies of the world were ordering torpedoes and launching devices from the factory at Fiume, while a few made

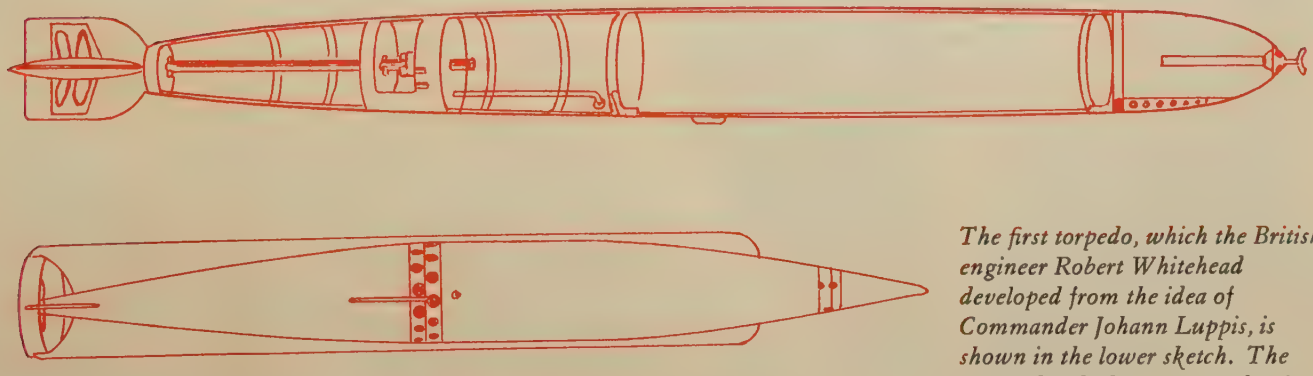
their own under license from Whitehead.

An Austrian naval draftsman, Ludwig Obry, made one of the first major improvements in the Whitehead torpedo. He added a gyroscope to keep the missile on a set course. Although the automotive torpedo met with little success during the first decades of its existence, in time it began to influence construction, tactics, and even basic doctrine. It did not reveal its full potential as a weapon until the submarine, and later the airplane, became operational, that is, during the two world wars of the twentieth century. Indeed, without the torpedo, the submarine could hardly have become effective.

Embodying the most complex and marvelous engines and instruments, the torpedo represented the peak of technological development in the late nineteenth century.

In the late 1870s the world's navies began acquiring boats to carry the new weapon, against which the battleships of the period seemed defenseless, for their heavy guns were slow-firing and cumbersome. In time, countermeasures, such as the rapid-fire gun and the torpedo-boat destroyer, were developed to cope with the threat. But for a while it seemed that the little and inexpensive boats had brought an end to the usefulness of big and expensive battleships.

The naval doctrine propounded by French Admiral Aube and known as the Jeune Ecole (Young School) followed that line of thought. It saw no need for battleships, and put its faith in cruisers for direct attack on the enemy's (Great Britain's) shipping, and in torpedo boats for coastal defense. Though vestiges of it have survived to this day, the influence of the Young School, later swamped by that of the writings of Mahan, was neither universal nor long-lasting. By the 1890s, battleships were again



The first torpedo, which the British engineer Robert Whitehead developed from the idea of Commander Johann Luppis, is shown in the lower sketch. The upper sketch shows a torpedo of the type used by the Austro-Hungarian Navy in World War I.

The men of the Arctic exploring schooner ADMIRAL TEGETTHOFF *abandon her in the Barents Sea, far north of Russia, when she appears doomed by the ice.*

being built by every maritime country and, of more importance, were proving themselves in action.

ARCTIC EXPLORATION

CONTINUING the interest in scientific work and exploration generated in the mid-nineteenth century by Archduke Ferdinand Max, the Austro-Hungarian Navy made several important contributions to the advancement of learning during the last half of that century. Chief among these was probably the work done by an expedition led by Navy Lieutenant Karl Weyprecht and Army Lieutenant Julius von Payer, during the years 1872 through 1874. The former will be remembered as the officer who took over command of the ironclad *Drache* when her captain was killed during the Battle of Lissa.

Sailing in the specially-built, 220-ton Arctic exploring schooner *Admiral Tegetthoff,* the two leaders and a crew of 22 set out in search of the "Northeast Passage" around Siberia, from the Barents Sea to the Bering Strait. But although their tiny three-master was equipped with an auxiliary steam engine, she was soon imprisoned by pack ice and for over a year drifted at the whim of the currents. At one point, the crew sighted land but, even so, months passed before they could set foot ashore. They named

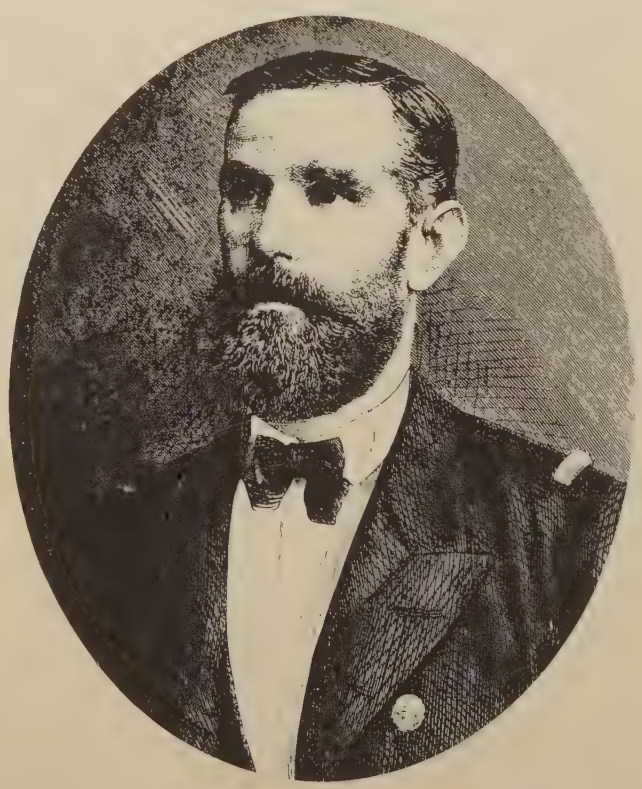
their discovery Franz Josef Land and explored it methodically, reaching as far north as 82°05′ latitude.

The *Tegetthoff* was in constant danger of being crushed by ice and, when that appeared about to happen on 10 May 1874, crew and passengers abandoned her and set out on foot for open water. But the ice over which they had to travel kept drifting northwards and they made little headway. It took them 96 days to reach the open sea, whence they managed to return home via Novaya Zemlya. Despite the strain and hardship, scientific measurements were taken systematically throughout the trek. Lieutenant Weyprecht later recaptured the experience in a painting which he entitled, "We'll Never Get Home!"

AUSTRIA did not exercise any claim to her Arctic discovery, and today it belongs to the Soviet Union. Western atlases continue to call it Franz Josef Land and retain a number of other designations given by the Austrians to outstanding landmarks, but the Soviet Union has renamed the land Lomonossov.

The Payer-Weyprecht expedition was followed by other Austrian attempts to learn more about the polar area, but no new land was discovered. Later, Lieutenant Weyprecht and the German physicist and oceanographer, Georg von Neumayer, launched the idea of an "International Polar Year," and the first one was proclaimed in 1882-1883. At that time a number of nations established observation stations in the Arctic for the collection of scientific data according to plan. Austria's part in that first Polar Year was to man a station on Jan Mayen Island. Similar projects have since been expanded to include the Antarctic.

Other cruises made by the Austro-Hungarian Navy included one in 1874-1876 by the corvette *Erzherzog Friedrich*. She went to the Far East to collect scientific information, and to promote trade between Austria and the countries of that region. A third object of the voyage was to investigate the possibility of establishing an Austrian colony on the island of Borneo, then mainly under British influ-



Lieutenant Karl Weyprecht

ence. A detachment sent ashore on the north coast of that island to gather wood for the ship's boilers was attacked by local pirates and there were casualties. That was the end of the colonial effort. It turned out later that the natives had mistaken the red-white-red Austrian flag for the yellow-red-yellow ensign of Spain, with whom they were at war.

In 1896 the gunboat *Albatros* went to the British-governed Solomon Islands. On the island of Guadalcanal the landing party was attacked by natives and several of its members were lost.

A great deal of hydrographic research was done, chiefly in the Mediterranean, where the hydrographic research vessel *Pola* located what is still the greatest recorded depth in that sea, the "Pola Deep" of about 15,500 feet. Similar work was carried out in Turkish waters and in the Red Sea.

THE STERNECK ERA

IN 1883, Admiral Pöck was succeeded as commander-in-chief of the Navy by Vice Admiral Max von Sterneck, who had been Tegetthoff's flag captain at the Battle of Lissa. Though a brave man and an accomplished courtier, von Sterneck did not radiate inspiration, and he was a poor administrator. Furthermore, he was neither persuasive enough to get the parliament to give him what he wanted for the Navy, nor was he persistent in pushing his demands. Except for adding the two mediocre turret ships mentioned previously, and a few small cruisers and torpedo boats, he did little to strengthen or modernize the fleet. Nevertheless, his interest in naval education and training did raise the standards of the Service.

DURING the long Sterneck era, from 1883 to 1897, the Navy participated in several international actions. The island of Crete, though populated mostly by Christian Greeks, was still under Turkish rule. Repeated revolts against the Turks kept the island in a state of constant turmoil, and both sides committed atrocities. When war between Greece and Turkey appeared imminent in 1886, the great powers of Europe, still reluctant to see the Ottoman Empire collapse, intervened to prevent it. Ships from England, Italy, Austria-Hungary, and Germany were sent to discourage the would-be belligerents, and landing parties frequently had to protect cities and people from attacks and annihilation. In 1897, the Greeks rose again against the Turks on Crete and many people were killed. When Greece sent warships to the island, the powers imposed a blockade, drove the Greek ships away, and prevented the Turks from taking bloody reprisals. Austrian ships were assigned to one of the most active fronts and their crews became involved in numerous fights, mostly with the Turks, although both sides had to be restrained or protected at various times.

Eventually, the Greeks were defeated by the Turks and although the great powers named Prince George of Greece as governor of the island in 1898, Crete did not become an integral part of Greece until the Treaty of London ceded it to Greece in 1913.

At the turn of the century, although she had no overseas colonies and her Navy was small, Austria-

Royalty shifts its flag from the cruiser KAISERIN ELISABETH *to the corvette* FASANA *in 1893.*

Hungary was one of the great powers. By 1914 her population of 53 million was the third largest on the continent of Europe, trailing only those of Russia and Germany, and it represented a considerable military power potential.

While not exceedingly rich in coal and iron, the Monarchy had enough raw materials to develop and maintain its industry. Its agriculture was almost productive enough to satisfy normal domestic needs, and even produced exportable surpluses of some products. By 1914, about one-sixth of its exports were going overseas, and about 75 per cent of this trade was carried in Austro-Hungarian ships.

BATTLESHIPS AT NIGHT, 1904

Painting by Alex Kircher

CHAPTER VI

Prelude to War 1897-1914

WHEN ADMIRAL STERNECK DIED in 1897 and was succeeded by Admiral Hermann von Spaun, a new epoch began for the Austro-Hungarian Navy. Naval shipbuilding was put on a regular basis and for the next 20 years continued at a fairly steady pace. But despite the doctrines of Mahan, which were then influencing the programs of most navies, Austria was slow to shed the notion that the role of her Navy was merely to defend the coast. Consequently, the ships built under the Spaun administration were not those needed to create a blue-water navy. The first three "battleships," which, it must be said, were launched before Spaun's accession to power, displaced only 5,600 tons; that is to say, they were half the size of contemporary battleships of major navies.

As did other maritime nations, Austria-Hungary periodically dispatched ships to cruise in various parts of the world. Some of the cruises had specific missions, such as the protection of nationals or of commercial interests, and others were made merely for the purpose of showing the flag. The armored cruiser *Kaiserin und Königin Maria Theresia* was on a routine cruise in the West Indies during the Spanish-American War in 1898 and witnessed the Battle of Santiago. In fact, she narrowly escaped being attacked by American ships that mistook her for a Spaniard.

When the Boxer Rebellion started two years later, the small cruiser *Zenta* was in Chinese waters. Led by their captain, Commander Eduard Thomann von Montalmare, her sailors joined those from other countries' warships and landed at Tientsin several days before Chinese fanatics cut the railroad between that port and the inland capital city of Peking, where the lives of all Westerners were in danger. Commander Montalmare was killed in the fighting that took place. Although the international fleet reduced the Taku forts guarding the approach to Tientsin, Peking's besieged foreign colony was not rescued until heavy naval reinforcement and an international army of some 18,000 men arrived about two months later.

Austria-Hungary did not send any troops to China, but she did send ships. The armored cruiser *Kaiserin und Königin Maria Theresia,* the small cruisers

Kaiserin Elisabeth and *Aspern,* and two training ships joined the *Zenta.* Detachments from these ships, 400 men all told, took part in every major operation, and suffered a higher percentage of loss than did any other national contingent.

As a consequence of the Boxer Rebellion, Austria-Hungary thereafter kept at least one cruiser permanently at Tientsin—usually an old one—and a detachment of some 220 men as legation guards. Also, the naval power displayed during the rebellion led to a significant increase in Austria-Hungary's trade with the Far East.

A few years later, in 1905, another international fleet gathered before Mytilene on the Aegean island of Lesbos to enforce financial agreements concerning Macedonia made between the great powers and Turkey. The commanders of the various fleet detachments chose Austrian Vice Admiral Julius von Ripper as leader of the demonstration, which succeeded in forcing Turkey to live up to her promises.

In 1907 an Austro-Hungarian squadron attended the tricentennial celebration of the founding of Jamestown, the first British settlement on the American continent.

Whenever ships from many nations gathered together, Austro-Hungarian ships came in for praise. Officers and men got along well with their opposite numbers in other navies, and the general view of them is perhaps best summed up in the Russian naval opinion quoted by Frederick T. Jane in *The Imperial Russian Navy*: "Very good officers, very good navy—what there is of it."

Soon after Admiral Count Rudolf Montecuccoli became commander-in-chief in 1904, the Navy again came in for serious attention. The advent of the dreadnought type of battleship in 1906 reduced the

Admiral Archduke Francis Ferdinand

value of the numerous older battleships of other navies and gave the Monarchy a chance to make up for past neglect; the domestic financial situation had improved; and the heir to the throne, Archduke Francis Ferdinand, showed great interest in naval affairs.

Another asset was the upward turn the merchant marine was taking. New railroads through the Alpine passes were opened in 1906 and 1908, shortening the rail journey between Trieste and the southern

part of Austria-Hungary, Switzerland, and southern Germany by from 20 to 150 miles. These facilities, together with a reasonable tariff policy, made Trieste competitive with the Italian ports of Venice and Genoa for trade between Central Europe and the East. On the other hand, Trieste and the Italian ports are some 5,000 miles from New York and 6,000 miles from Rio de Janeiro, which makes them less attractive than the Atlantic ports of Europe for shipping to the Americas.

The Archduke's interest in the Navy started when he went on a world cruise in 1892-1893. It was, as we have seen, an imperial prerogative to appoint princes to high command regardless of age or experience and, although he had never served in a warship, in 1902 Archduke Ferdinand was appointed admiral. He did everything he could to improve the Navy, as princes previously appointed to high naval command had done. It was thanks to him that the Austro-Hungarian Navy finally saw that there was more to sea power than coast defense, and set a course that in its last years made it comparable with other naval powers.

THE NAVY WINS POPULARITY

BECAUSE of the foregoing considerations as well as the persuasiveness of Admiral Montecuccoli, the Navy became for a while a favorite not only of the Austrian public, but even of the Austrian and Hungarian parliaments, which appropriated large naval budgets. Unfortunately, this enthusiasm reached its peak too late. Many fine ships were to have been built but after war broke out in 1914 only those nearly ready were completed. Nevertheless, a fair number of excellent ships joined the fleet before the war disrupted the program.

In 1911, Admiral Montecuccoli presented parliament with a program for building 16 battleships, 4 large and 8 scout cruisers, 24 destroyers, 72 torpedo boats, 12 submarines, and a number of auxiliary vessels. This program was similar to the one submitted some 40 years earlier by Admiral Tegetthoff.

Although the three classes of battleships completed before 1907 were well planned and, for their size, combined good speed with the maximum possible in fire power and protection, they were not as big or as well armed as their contemporaries in other navies. The next group, the three *Radetzky*-class battleships commissioned between 1910 and 1911, the last pre-dreadnoughts built by the I. & R. Navy, were still new at the outbreak of the war, but at 14,500 tons they were smaller than those of other naval powers. The contemporary French *Danton* class displaced 18,000 tons. Even so, the *Radetzkys*, unlike their predecessors, were true deep-water fighting ships.

Between 1912 and 1914, the four ships of the *Viribus Unitis* class ("With United Effort," the Emperor's motto) joined the fleet and gave the I. & R. Navy its first and, as it turned out, only dreadnought battleships. These ships were also the first of their type in the Mediterranean. Although, again, at 20,000 tons, smaller than most of their contemporaries, they compared more favorably in size than any other Austro-Hungarian heavy ships. They carried 12 12-inch guns in four triple turrets and a secondary battery of 12 5.9-inch guns in casemates, were fairly well protected against shellfire, and could

do more than 20 knots. They were among the first ships in the world to have triple turrets.

Had it not been for the daring of Admiral Montecuccoli, it is possible that none of these ships would have been completed when the war broke out. Because a delay in getting contracts might force dismissal of experienced workers, Austria's leading shipyard, Stabilimento Tecnico Triestino, offered to start work on two of the four ships planned before parliamentary approval for their construction was given. The Admiral took the risk of accepting the offer and, approval being later given, three of the four ships were ready when war came and the last ship soon after. *Viribus Unitis* herself was built in the record time of 24 months.

With concentration centered on the building of battleships, the Austro-Hungarian Navy's need for cruisers and destroyers was neglected. Three *Zenta*-class cruisers were launched between 1897 and 1900 and the small armored cruiser *Sankt Georg* was launched in 1903, but from then until 1909, when the light cruiser *Admiral Spaun* was launched, no scouting vessels were built. Three more light cruisers were launched between 1912 and 1913, but even so the fleet was short of such ships.

Some of the major navies stopped building torpedo boats about 1900, but the Austro-Hungarian Navy went on building them up to the time of the war. Though they were too small and slow to compete with contemporary destroyers or to accompany the fleet much beyond its own ports, in coastal waters they were useful. Austria had her first destroyer, a 400-tonner which joined the fleet in 1905, built in England. Then, as she had done with the frigate *Radetzky* 60 years earlier, she used her as a model and built 11 more in the four years that followed. But even when six 850-tonners and the 386-ton *Warasdiner* were added in 1912 and 1913, the torpedo flotilla was still not strong.

Nor, in spite of her long preoccupation with coast defense, did Austria-Hungary have enough submarines, which at that time were looked on chiefly as coast-defense craft. Six small ones were acquired between 1907 and 1910: two Germania-type were built in Germany, two Lake-type and two Holland-type were built in Pola and Fiume. In 1911, five 685-ton boats were ordered from Germany, but were not completed in time to be delivered before the war. Some of them did get to the Adriatic Sea during the war, but they came as German ships, flying the German flag.

ADMIRAL HAUS TAKES OVER

IN 1913, Admiral Anton Haus took command of the Navy. He was popular with his subordinates, and was generally considered to be one of the best tacticians of his time. In order to be closer to the fleet, he moved the official residence of the commander-in-chief from Vienna to Pola, leaving a vice admiral at the Naval Section in Vienna to represent him and to serve as chief of naval administration.

In 1879, the year following the Congress of Berlin, Austria concluded a defensive alliance with the new German Empire. A few years later, Italy joined it to form the Triple Alliance (Dreibund). A secret clause of this Alliance signed 1 November 1913 provided for the fleets of Italy, Austria-Hungary, and whatever German ships might be in the Mediter-

The Viribus Unitis *was the first of Austria-Hungary's four dreadnoughts. Displacing 20,000 tons, she carried twelve 12-inch and twelve 5.9-inch guns, and was designed for a speed of 20.5 knots. The diagonal lines along the ship's side were booms to support a torpedo net. Just before the World War, Austro-Hungarian warships were painted dark green.*

ranean to be coordinated under the command of Admiral Haus. Whether the Italians would actually have accepted him as their commander-in-chief and whether the Italian and Austro-Hungarian fleets could have operated effectively together are problematical matters that were never put to the test.

In 1914, Admiral Haus submitted a program for building four 24,500-ton battleships with 10 14-inch guns each, three 4,800-ton cruisers, six destroyers, and one submarine. Although the program was approved by parliament, only four of the ships, destroyers all, were to be completed.

THE COAST AND THE ADRIATIC

IT is time to say a few words about the waters in which the Navy had to operate, and the coast which for four years it was to defend.

In 1914, out of a total Austro-Hungarian frontier of 6,300 miles, some 1,300 miles were mainland seacoast, added to about 2,500 miles of island seaboard. All of this long coast was on the Adriatic Sea, a branch of the Mediterranean. Usually a mild and pleasant body of water, the Adriatic can quickly be

GERMANY
RUSSIA
FRANCE
SWITZ.
AUSTRIA
HUNGARY
ROMANIA
BOSNIA
SERBIA
BULGARIA
ITALY
MONTENEGRO
OTTOMAN
EMPIRE
GREECE
SOUTHEASTERN EUROPE
1911

whipped by sudden violent winds into short, choppy waves. Occasional fog, tidal currents between islands, and the configuration of the coast make navigation difficult. Unlike the western, or Italian, side of the sea, the eastern side is littered with islands, large and small, and scarred by gulfs and harbors. In many places, the mountains come right down to the sea, making communication with the interior difficult. Hence, a good deal of Dalmatia's domestic communication was by water, and that was the best way of getting to the spacious Gulf of Cattaro at the southern tip of the country.

Even though Austria was soon to be at war with the power that controlled both ends of the Mediterranean—Great Britain—her naval situation would have been much less dire if Italy had been her ally: she would have been able to use Taranto and other ports of southern Italy, which would have cut almost 500 miles off the distance between her operating bases and the Allied lines of communication through the Mediterranean; and, most importantly, her ships could have passed unhindered through the Strait of Otranto. The offhand decision a hundred years earlier to give up all claims to the Ionian Islands in exchange for possession of Lissa turned the Adriatic into a strategic blanket in which the Austro-Hungarian Navy was to be smothered.

From the standpoint of a coastal defender, however, the geography of the eastern Adriatic has advantages. The configuration makes mining easy and the many islands providing lookout stations also offer places where small craft can lie in wait to dart out and make surprise attacks on intruding enemies.

Istria and Dalmatia accounted for most of the Austro-Hungarian coastline, and the majority of the inhabitants were Southern Slavs, either Slovenes or Croats. In the coastal towns, however, Italian influence was strong and many people considered themselves Italians rather than Slavs.

It was probably because Austria had acquired most of her coastal region from Venice that the Italian names for the coastal cities and islands were retained during the 120 years of Austrian rule. In this account Italian nomenclature is used, and modern Yugoslav names are given in parentheses whenever it seems necessary. Among the important coastal cities were: Pola (Pula), Trieste, Fiume (Rijeka), Zara, (Zadar), Spalato (Split), Sebenico (Šibenik), Ragusa (Dubrovnik) and Cattaro (Kotor).

NAVAL BASES

DEVELOPMENT of Pola as a naval base began in 1848, and during the time when Archduke Ferdinand Max was commander-in-chief, 1854-1864, it became the main base of the Austrian Navy. It has a fine natural harbor, and the Brioni Islands, lying just to the north, not only provide a measure of natural defense, but form a roadstead where a fleet can be assembled and minor exercises and gunnery and torpedo practice can be carried out. By 1914, Pola had become a first-class port with a navy yard and arsenal, building slips, floating dry docks and graving docks, and facilities for repairs and for fuel storage. Guns, minefields, wire and log barricades, nets, torpedo-launching stations, and guard ships made it virtually impenetrable from the sea. But on the land side, antiquated fortifications were the only protection.

The second naval port of the Monarchy, the Bocche di Cattaro (Boka Kotorska), although possessed of a splendid fjord-like harbor, was not, in the early days of the war, considered a first-class naval base. The reasons were that its location was not convenient in relation to the rest of the Empire; its only connection with the interior was a narrow-gauge railroad through the mountains; and it was overlooked by the Montenegrin mountain massif of the Lovčen, on which hostile guns could be mounted. Further, Venice and Ancona were within easier reach of the short-legged Austrian ships if they operated from Pola; Trieste and Fiume could be reached rapidly from Pola; and it was simpler for the Austrian fleet to support its own land forces on the Italian border, or harass those of the enemy, from Pola than it would have been from Cattaro. Hence, the defenses of Cattaro were not built up before the war, and it probably could not have withstood determined, simultaneous attack from sea and land, had such been launched against it in the early days of the war. After the conquest of the Lovčen by Austro-Hungarian troops, however, Cattaro did become an important base for light forces.

SEBENICO, roughly midway between Pola and Cattaro, could handle small vessels, and was used as an auxiliary base. Minefields were the sole effective protection for this port.

The island of Lussin (Lošinji), with its port of the same name, was protected by guns, mines, and barricades, for in enemy hands, it would have made a convenient base from which to attack Pola. Indeed, in the hands of an aggressive foe, it could have been very dangerous to the Austrian hold on Dalmatia. Its chief usefulness to the Austro-Hungarian Navy was as a communications center.

Plans for building a large naval base on the Dalmatian coast were never implemented, partly due to lack of funds, and partly because the two parliaments of the Dual Monarchy could not agree whether the site should be Sebenico, favored by the Navy, or Spalato, preferred by the Army.

NAVAL AVIATION

NAVAL aviation received attention in Austria relatively early. Several officers were sent to England and France in 1909 to take flying lessons. At first, it seemed as though aviation would be most useful for reconnaissance, and experiments to determine what type of aircraft should be acquired were soon begun. Lighter-than-air craft were considered but never were acquired. The choice settled on flying boats and several Curtiss, Levêque, and other models were ordered.

Men from the regular Navy were trained as pilots and observers to serve in naval aviation. The commander-in-chief, Admiral Montecuccoli, went flying several times. In the beginning, training was given by the aviation industry; later, by the Army aviation school and, by 1914, the Navy had its own training facilities and instructors.

A factory and landing station were built at Pola in 1911 and by the next year aircraft were being produced. During the Balkan Crisis of 1913, a second

seaplane station was established at Bocche di Cattaro. Three planes were attached to a battleship division for a time, but it was found better to operate them from a base on the beach. During the war, naval air stations were established at Trieste, Parenzo (Poreč), Fiume, Sebenico, and Durazzo; a second one was built at Pola, and temporary ones were set up on the islands of Lissa and Lagosta. By 1914, the Navy had 30 airplanes, of which 16 were combat aircraft.

The improvement in scouting that aviation brought was welcomed by all branches of the Service. Later, naval planes were used for bombing and strafing and, as their uses multiplied, so did the prestige of naval aviation. There does not appear to have been any friction or competition between aviation and other branches of the Navy.

THE DANUBE FLOTILLA

NOT counting the Volga, the 1,750-mile Danube is Europe's longest river. Together with its tributaries, it drains an area of some 325,000 square miles. From earliest times, it has been an important artery for both military and commercial traffic.

For a period during the first century A.D., the Romans kept over a hundred rowing vessels on the Danube, each with a complement of from 80 to 100 men. This river police force, whose headquarters were at Carnuntum, near present-day Vienna, was created to prevent northern and eastern tribes from crossing into Roman territory.

As early as 1440, a boatyard in Vienna was building war vessels for use on the Danube. During their wars against Byzantium and the Turks, the kings of Hungary maintained flotillas on the Danube and Sava rivers. By defeating the invading Turks in 1456, the river boats postponed for 70 years the Turkish conquest of Hungary. The use of a similar force during the campaigns of Prince Eugene was mentioned earlier. Though none of these forces seems to have been provided with craft especially built for river warfare, fighting ships and troop transports were used effectively on the Danube on many occasions.

After the wars against the Turks, the river force was neglected and became all but defunct. By the time of Napoleon's first march on Vienna in 1805, not enough of it was left to prevent him from crossing the river, nor had it been reinforced when he crossed again in 1809.

Steam power radically changed conditions of travel on the river, and as early as 1813 the Austrian government began to encourage commercial shipping on the Danube. For a long time after its founding in 1830, Österreichische Donau-Dampfschiffahrtsgesellschaft enjoyed an almost complete monopoly of the river trade. By 1914 the carrying capacity of its 142 steamers, mostly paddle-wheelers, and 860 barges, was 470,000 tons. This tonnage, plus that of the Hungarian Danube Navigation Company and two minor concerns, provided the Austro-Hungarian Monarchy with a merchant fleet on the Danube that consisted of 70 passenger steamers, 174 tugboats, 6 motorships, and 1,455 barges, for a total carrying capacity of 842,000 tons at the outbreak of the war.

About the middle of the nineteenth century, a number of obstructions to river transportation were removed. For example, the dangerous rapids of the Iron Gate on the border between Romania and what

is now Yugoslavia were eliminated in 1848, and from 1869 onwards the course of the river at Vienna was regulated.

Five merchant steamers armed and organized into a flotilla in 1850 were abandoned a few years later, with the result that in 1866 while the Navy was winning glory on salt water there was no armed force on the river to prevent Prussian troops from crossing it.

The first Austrian river ships of consequence, the turreted *Maros* and *Leitha,* were launched in 1871 and became the nucleus of a new Austro-Hungarian Danube Flotilla. These flat-bottomed, 310-ton armored vessels were built on the monitor principle, and were still in active service during World War I. In fact, besides being the oldest ships fighting in any navy, they took part in some of the heaviest fighting of the war.

Later additions to the Flotilla were of the same type but, besides their 4.7-inch guns, they were equipped with 4.7-inch howitzers, which enabled them to reach targets on high ground along the river banks. The Flotilla fought its first battle in 1878 when it protected an Austrian Army corps crossing the Sava River during operations connected with Austria's occupation of Bosnia.

In 1914, the Flotilla consisted of six monitors, with two more building, seven 15- to 36-ton motorboats, and a number of auxiliary vessels. During the war, it acquired some new monitors and nine patrol boats of 60 to 133 tons, with 2- or 3-inch guns, speeds of from 12 to 18 knots, and complements of from 25 to 42 men. Many merchant ships were used as auxiliaries.

The Danube Flotilla had two missions. First, it was to aid the Austro-Hungarian Army by patrolling and reconnoitering the river system, escorting troop and supply ships, screening military crossings of the river, removing obstructions, such as mines and barricades, carrying troops for raids and surprise attacks, shelling enemy positions, and, in general, providing fast, mobile, heavy artillery in support of land operations.

Second, it was to hamper the enemy by interrupting his communications, creating obstructions, capturing or sinking his ships, destroying his supplies, and preventing his troops from crossing the river.

The Danube Flotilla was part of the Navy, which ordered officers and men to temporary duty on the rivers. In peacetime, it was commanded by an officer with the rank of commander; in wartime, by a captain or rear admiral. Its headquarters were at Budapest. It was administered by the Navy, but operated under the direction of the Army commander whom it was supporting.

SHIPYARDS AND BUILDING FACILITIES

IT was mainly because the Monarchy was able to build warships and merchant vessels, to manufacture guns and armor, and to provide supporting services, that the Austro-Hungarian Navy was strengthened as rapidly as it was immediately prior to World War I.

The largest private Austrian shipyard, Stabilimento Tecnico Triestino, could build ships and ships' engines of any size. The second largest, Cantiere Navale Triestino at Monfalcone near Trieste, could build cruisers, destroyers, and small craft.

At Fiume there was the Hungarian Danubius yard which at first built only small craft. Shortly before the war, it was greatly enlarged and built a battleship, two cruisers, and several torpedo boats. Because the Hungarian coast at Fiume was not long enough—only two and a half miles—for all those operations, separate slips had to be set up at nearby Porto Ré in Dalmatia, and that is where the torpedo boats were built. The Stabilimento Lazarus and the Whitehead yards in Fiume also built small vessels, the latter being where the submarines were built.

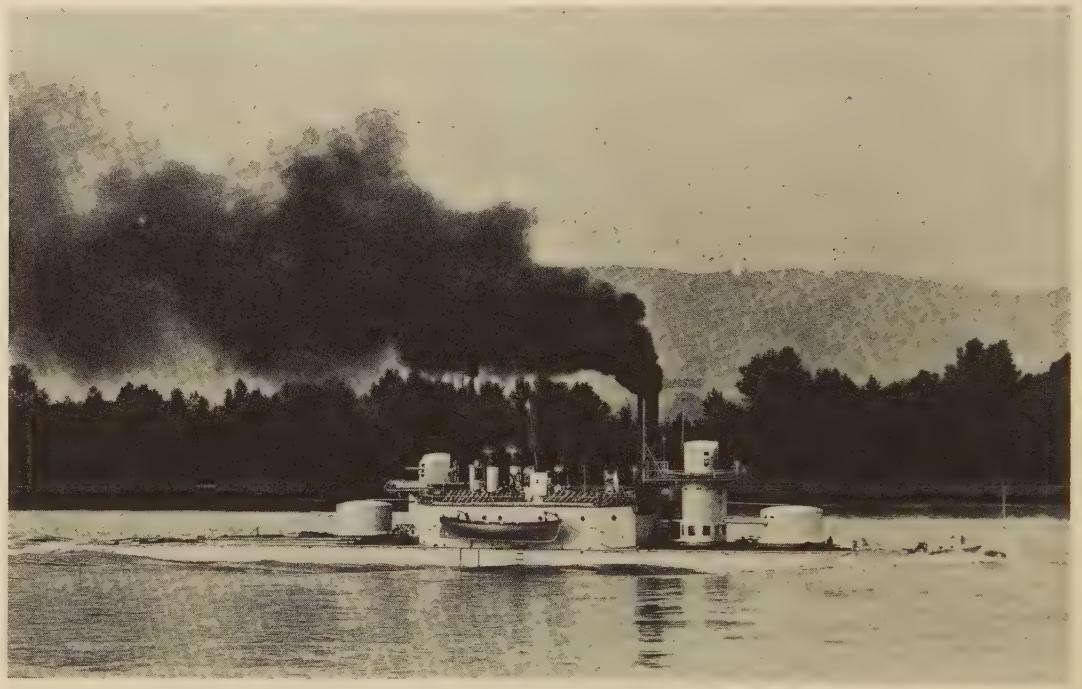
There was a naval shipyard at Pola with facilities for repairs and docking and for building vessels of all sizes, but after 1911 all shipbuilding was done by private companies.

Guns came from the Skoda Works in Pilsen, Bohemia, and most of the armor came from the Witkowitz Iron Works, near Ostrau in Bohemia. Torpedoes were still being made at the Whitehead factory in Fiume, while submarine mines were made by a number of firms.

As a detail of technical interest, it may be mentioned that even the largest Austrian and German guns used metal cartridges, which proved superior to the silk powder bags used by other navies, even during World War II.

Shipbuilding became good enough to attract foreign orders to the Austro-Hungarian yards, and in 1914 three cruisers and a dozen destroyers were building at Trieste for China. After the war started,

The destroyer TATRA, *an 850-ton ship completed in 1913, was capable of making 33 knots. She carried two 3.9-inch guns, six 70-mm. guns, and four torpedo tubes.*



The river monitor Szamos, *448 tons, was built in Budapest in 1892. She carried two 4.7-inch guns and two 70-mm. guns, and was designed for 10 knots. Her draft was four feet.*

one of the destroyers was completed and joined the Austro-Hungarian Navy, but the rest of the order was abandoned.

OFFICERS

AS shown earlier, most of the officers of the I. & R. Navy were German Austrians. Only line officers, chaplains, lawyers, and surgeons were called "officers"; engineers, paymasters, and others, though holding commissions, were called "officials."

Just before the war there were on active duty about 1,000 officers, including cadets (who corresponded roughly to ensigns in the U.S. Navy), and about the same number of officials. During the war, the mobilization of reserves and the return to duty of some retired people brought the numbers up to about 1,500 and 1,300 respectively.

There were two ways to become a line officer. About one half of the candidates entered the Service by attending the Naval Academy at Fiume for four years. The Academy corresponded to a high school, and its graduates were commissioned as cadets. Cadets served aboard ships for about two years, then took an "officer's examination" and, if successful, continued to serve as cadets until they were appointed lieutenants.

Another way to become a line officer was to graduate from a civilian high school, join the Navy as an "aspirant," do a year or two of training and service in school ships, then follow the same program as the graduates of the Academy.

There were about 150 to 200 students at the Academy at any one time, while aspirants were accepted as necessary, usually in groups of 50 to 100.

After becoming lieutenants, the young men had to take special courses in gunnery, the handling of torpedoes or mines, naval aviation, radio telegraphy, and so forth. Archibald Hurd, a British writer on naval affairs, said in his book *The Fleets at War,* London, 1914: "All-round efficiency is maintained on a high level. The officers are men of excellent education, wide knowledge, and unlimited zeal."

ENLISTED MEN

IN 1848 the Austrian dramatist, Franz Grillparzer, wrote a poem eulogizing General Radetzky. In it he commented on how well the various nationalities of the Empire got along together in the General's camp. If that was true of the Army, it was even more true of the Navy, where men of various nationalities were thrown into closer relationship than was necessary ashore. As in the Army, most of them served faithfully and fought bravely for their common fatherland.

About 50 per cent of the enlisted men in 1914 came from the coastal areas of the Monarchy. The composition was as follows: 31.3 per cent Croatians, 20.4 per cent Magyars, 16.3 per cent German Austrians, 14.4 per cent Italians, 10.6 per cent Czechs, 2.8 per cent Slovenes, 1.8 per cent Poles, 1.2 per cent Romanians, 0.8 per cent Ruthenians, and 0.4 per cent Slovaks. Germans and Czechs predominated among the engineers and electricians and among the crews of the heavy guns; medium-caliber guns were handled mostly by Magyars; machine guns and work requiring physical strength, endurance, and maritime skills, such as stoking, deck and boat work, and mining, were usually handled by Croats.

Enlisted men did four years on active service and eight years in first and second reserve. There were also so-called "one-or-two-year volunteers," mostly merchant marine officers who could, after their one or two years (the choice was theirs) of active service and some reserve training, be commissioned as ensigns or lieutenants.

Candidates for engineering petty officer rates were accepted at training schools in Sebenico at the age of 17, but candidates for seaman and other non-engineering petty officer specialties were accepted at 14 years of age. Graduates of the engineering school were the only petty officers who could be commissioned. After several years' service as machinists, they were eligible to become "officials," and could go as far as the rank of captain. The system produced an excellent nucleus of long-serving professionals, which was, to a great extent, responsible for the efficiency of the Navy during the war.

Relations between commissioned and petty officers, and between both of them and non-rated men were good, despite linguistic problems. Every officer had to speak at least four languages. Even seamen were expected to understand commands in German and to know enough of the other languages generally spoken in the ships, mainly Serbo-Croatian

and Italian, to get along with their shipmates.

The strength of the Navy was about 20,000 as peace came to an end in 1914. During the war the number doubled.

AN article about the Austrian Army in *Westminster Review,* February 1913, expressed a widely held opinion about the quality of Austro-Hungarian naval personnel: "(In the army, despite its many good qualities) there is a lack of that spirit that makes a Britisher, a Frenchman, or a Bulgar believe that he is the equal of at least three of any other nation. In some respects this is a dangerous sentiment, tending to make for slackness in time of peace. But in time of war, it is invaluable for stiffening a force and inspiring a commander to bold and resolute action. There is not enough of it in the Austrian Army. The curious thing is that it permeates strongly the Austrian Navy; it is just that spirit that joined to iron discipline and tremendous keenness, has made the Austrian Navy, small as it is, ship for ship, perhaps the most efficient of modern times. It was brought there by Tegetthoff. The Austrian Army badly needs a Tegetthoff."

The World War proved this estimate to be correct. There is no doubt that the "spirit of Tegetthoff" had established in the officers and men of the Austro-Hungarian Navy an honorable tradition of attacking regardless of the odds against them, and of persevering until obstacles, however formidable, were overcome.

The Austrian Lloyd's fast passenger liner WIEN *initiated express service between Trieste and Alexandria, Egypt, in 1911. A 7,300-ton ship, she had a speed of 18 knots.*

MERCHANT MARINE

SAVING at last become aware of the importance of the merchant marine, the Austro-Hungarian government passed legislation in 1893 and in 1907 allowing it to subsidize domestic shipbuilding and shipping companies. As a result, by 1913 the Empire was carrying three-quarters of its maritime trade in its own ships.

At the outbreak of World War I, the Austro-Hungarian merchant fleet consisted of about 20,000 seamen with 1,600 sailing ships, mostly coasters, and about 500 steamers, for a total of over 1,000,000 gross tons. This figure represented roughly two per cent of total world tonnage, and put the shipping capacity of the Monarchy in tenth place among nations. In addition, there were some 24,000 fishing boats in the Empire.

The biggest Austrian merchantmen were the *Kaiser Franz Josef I,* 12,500 gross tons, and the *Martha Washington,* 8,300 tons, both belonging to the Austro-Americana and Fratelli Cosulich Company; and the *Gablonz, Marienbad, Helouan, Wien,* and *Austria,* all belonging to the Österreichischer Lloyd and ranging from 7,000 to 8,000 tons.

In 1914 the biggest Austrian shipping company was the Österreichischer Lloyd with 62 steamships totaling 237,000 gross tons, and several more building. Ever since its founding, this company had specialized in trade with the Levant and tended to overlook the need for transportation in the Adriatic and across the Atlantic. To fill ocean needs, the Austro-Americana and Fratelli Cosulich Company

A large part of the prewar Austro-Hungarian naval air strength at the Santa Catarina naval air station near Pola. The three aircraft in the foreground are French-built machines delivered in 1913.

was founded in the early 1890s and built up its fleet to 34 ships totaling 145,000 tons. This was the second biggest line and most of its business was with the Americas. Next in size was the fleet operated by Tripcovich and Company with 16 ships, mostly tramps, of 58,000 tons all told. Then came Navigazione Libera Triestina, which also had 16 tramps, totaling 42,000 tons.

Adria was the biggest Hungarian shipping company and in 1914 its fleet consisted of 34 vessels for a total of 47,000 tons. Adria ran services to various parts of the world, including South America.

Coastal shipping was handled by the Austrian Dalmatia Line and the Hungarian Ungaro-Croata, both subsidized by their respective governments.

Besides those mentioned, there were several smaller companies, most of them Austrian, engaged in tramp shipping.

Trieste was the chief commercial port for Austria, and Fiume for Hungary, and both ports had all the necessary facilities. The ports on the Istrian and Dalmatian coasts were minor, partly because the thinly populated countryside surrounding them did not produce much of anything, and partly because railroad connections to them were poor.

IN 1913, Austria-Hungary's foreign trade totaled about 1,400,000,000 dollars. Exports included lumber, sugar, textiles, and industrial products, while imports consisted mainly of cotton, coal, grains, coffee, tobacco, vegetable oils, wool, machinery and instruments, hides, and skins. Although in tonnage imports exceeded exports by about two and one-half times, in value they came close to being equal.

Trieste had the leading coffee exchange of Europe, and was a center of trade with the Levant and the Black Sea. A large part of its passenger traffic was made up of emigrants bound for the United States from Austria-Hungary and countries to the east; but most of the 280,000 people who left the Dual Monarchy in 1910 traveled on foreign ships, mainly those of the Cunard Steam-Ship Company and the Canadian Pacific Company. Nevertheless, Austria's share of this business was increasing.

THE NAVY LEAGUE

THE build-up of effective fighting and merchant fleets was greatly helped by the Österreichischer Flottenverein (Austrian Navy League).

Founded in 1904 for the purpose of spreading and increasing understanding of the sea and sea power among the peoples of the Monarchy, the League, like most Austrian maritime efforts, got off to a slow start. But when in 1910 Archduke Francis Ferdinand took over as its Protector and appointed the energetic Prince Alfred of Liechtenstein to be its President, it began to grow rapidly, and by 1914 membership had reached 45,000 and all of Austria's nationalities and social strata were represented in it. Efforts to create a similar organization in Hungary never succeeded.

Among the most enthusiastic supporters of the Navy League were Austrians living abroad, who had learned from their new experiences how important an asset sea power is. One of the most use-

One of the last photographs of fleet mobilizations before the war shows the Austro-Hungarian battleships and coast defense ships steaming in two columns on a calm, hazy day.

ful accomplishments of these people was collecting the money to buy several airplanes for the Navy.

After many false starts towards widespread sea-consciousness, it really did look, in the second decade of the twentieth century, as though Austria would develop into a maritime country after all. The work of the Navy League was achieving its objective. Stepped-up naval construction and maritime trade had an invigorating effect on home industries and on incomes, and this also helped to make the Navy and the sea popular.

Then the war came and all these promising developments were brought to an abrupt end.

TORPEDO CRAFT IN A CHOPPY SEA

Painting by Alex Kircher

CHAPTER VII

Preliminary Operations 1914-1915

WORLD WAR I GREW FROM A CONflict between Austria-Hungary and Serbia, a kingdom without a seacoast, over the latter's attempt to take the Southern Slav territory out of the Dual Monarchy and incorporate it into a Greater Serbia or Yugoslavia. Hence, the old Empire, trying to preserve its integrity, was politically on the defensive.

Russia was the Monarchy's chief antagonist, but the two empires had no direct connection with one another at sea and during the four years of war their navies never met. Austria-Hungary had quarrels with neither Great Britain nor France but, by the terms of the Triple Alliance, she was aligned with Germany. The real maritime enemy in the eyes of the Austro-Hungarian Navy was the third member of the Triple Alliance, Italy.

Italy did not want the Dual Monarchy to remain as then constituted: on the contrary, she coveted its Italian-speaking provinces; she wanted the Adriatic to be her lake; and she wanted to wield more influence in the Balkan Peninsula. Up to the time that Italy changed sides, the conviction that she would do so influenced almost every decision and every move of the I. & R. Navy. No sooner had the war started than Italy went part way to confirming that conviction by declaring herself neutral. She claimed that the purposes of the Triple Alliance were strictly defensive and, therefore, she was not bound to support an Austro-Hungarian attack on Serbia.

When Italy failed to keep the naval agreements of the Triple Alliance, Austria-Hungary had no hope of waging the war at sea beyond the Adriatic. Pola is hundreds of miles from the main sea routes of the Mediterranean—Malta, for example, is almost 700 miles distant—and the destroyers and torpedo boats of the I. & R. Navy could not make so long a voyage unless they had access to an intermediate port. Furthermore, a superior force could pen the fleet in the Adriatic by doing no more than blocking the Strait of Otranto, 355 miles south of Pola.

Had the Ionian island of Corfu, or even the port of Valona in southern Albania, belonged to Austria, the lack of Italian co-operation would have been less important. The Austrian fleet need not have been locked in the Adriatic; communication with Turkey

would have been possible; and some of Austria's trade with the Levant might have been maintained.

It is interesting to note that back in 1797 when the Treaty of Campo Formio was drawn up, Napoleon had insisted that France keep the Ionian Islands. In his *The Influence of Sea Power upon the French Revolution and Empire, 1793-1812,* Alfred T. Mahan quotes Napoleon: "The islands of Corfu, Zante, and Cephalonia are of more consequence to us than all of Italy. If we had to choose, better restore Italy to the emperor and keep the four islands . . . Corfu and Zante give us mastery of the Adriatic Sea." (The fourth island he referred to was Levkas.)

At the end of the Napoleonic Wars, as we have noted, Austria tried to get possession of the islands on the grounds that they had belonged to Venice, but agreed to renounce the claim in return for Lissa.

As it was, the Austro-Hungarian Navy in 1914 was no threat to British traffic between Gibraltar, Malta, and Suez, or to French traffic with North Africa; consequently, Great Britain and France had no incentive to assume the risks inherent in attacking it in its home waters. In the course of the war, situations arose that demanded Allied action against elements of the Austrian fleet, but none that necessitated clashes between main forces.

Nor did the view from Vienna suggest any compelling reason for a fierce campaign at sea. Austria-Hungary was not directly threatened by France or Great Britain and, consequently, had no reason to attack their more powerful naval forces. Furthermore, even if offensive action had been possible, it would have dissipated the strength that the I. & R. Navy was convinced it would eventually need for use against Italy.

DISTANCES FROM POLA

(Nautical Miles)

Trieste	60	Cattaro	280	Malta	680
Venice	65	Valona	350	Syria	800
Ancona	75	Otranto	355	Istanbul	1,125
Sebenico	120	Corfu	425	Port Said	1,250
Lissa	143	Taranto	450	Gibraltar	1,620

STRATEGIC OBJECTIVES

CONCEIVABLY, the Austro-Hungarian Navy might have been assigned the following tasks in 1914: to defend its own coast and attack that of the enemy; to support and supply the Austro-Hungarian armies operating along the coast and to co-operate in amphibious operations; to protect Austro-Hungarian shipping in and beyond the Adriatic and keep open maritime communication with Turkey; to attack enemy shipping in and beyond the Adriatic; and to influence neutrals in favor of the Central Powers.

Actually, it could perform only within the Adriatic Sea; anything else was beyond its power.

Even before Italy joined them, the powers of the Triple Entente—Great Britain, France, and Russia—had about 650,000 tons of fighting ships in the Mediterranean. The Central Powers had about 245,000 tons. With Italy on the side of the Entente, the ratio became about four to one, or some 950,000 tons

COMPARATIVE NAVAL STRENGTH IN THE MEDITERRANEAN, 1914

Country	*Battleships*		*Armored Cruisers*		*Light Cruisers*		*Destroyers and Torpedo boats*		*Submarines*		*Total*
	Number	*Tonnage*	*Number*	*Tonnage*	*Number*	*Tonnage*	*Number*	*Tonnage*	*Number*	*Tonnage*	*Tonnage*
AUSTRIA-HUNGARY	15	177,000	2	13,600	4	10,500	48	16,400	6	1,400	218,900
GERMANY	—	—	1	23,000	1	4,550	—	—	—	—	27,550
ITALY	12	184,400	9	76,500	8	22,100	59	20,500	14	3,600	307,100
FRANCE	20	337,600	7	92,100	1	5,700	84	35,600	62	27,000	498,000
GREAT BRITAIN	—	—	7	108,500	4	21,300	16	15,200	6	1,900	146,900

Great Britain and France had considerable naval forces elsewhere which could be switched to the Mediterranean, if necessary. Austria-Hungary and Italy had no others.

against the same 245,000. Further, with Italy as an ally and Italian ports at their disposal, blockading the Adriatic was made immeasurably easier for the Western Allies.

INSTRUCTIONS FOR ADMIRAL HAUS

AUSTRIA-HUNGARY ordered partial mobilization on 28 July 1914 when she declared war on Serbia, and on 1 August the Supreme Commander of the Austro-Hungarian armed forces, Archduke Frederick, sent the following instructions to Admiral Haus:

"By virtue of the authority vested in me by His Most Gracious Imperial and Royal Apostolic Majesty as Commander-in-Chief of the Armed Forces, I charge Your Excellency with the task of carrying out independently the naval operations agreed upon by the Sovereigns of the Triple Alliance Powers. I transfer to Your Excellency full authority to enter into agreements with the naval staffs of the allied fleets and to implement all arrangements for co-operation. . .

"Within the framework of the general objective, the I. & R. naval forces will, in case of need, co-operate with the land forces in the Gulf of Cattaro and in such operations will be under the direction of the VI Army Command.

"If Italy does not live up to her alliance obligations, Your Excellency's mission will be limited to the defense of the Adriatic. Italy's attitude is still undetermined; as soon as it becomes clear I shall inform Your Excellency.

"I shall expect continuous reports on the intentions

THE OPPOSING ALLIANCES
World War I
GERMANY
RUSSIA
SWITZ.
neutral
AUSTRIA-HUNGARY
ROMANIA
BOSNIA
DALMATIA
SERBIA
MONTE.
BULGARIA
Black Sea
ITALY
Adriatic Sea
ALBANIA
TURKEY
Tyrrhenian Sea
GREECE
Aegean Sea
Ionian Sea
SICILY
MEDITERRANEAN SEA

and activities of our own and allied naval forces, and shall keep Your Excellency informed about the situation on land, as far as seems necessary. . ."

Another message followed the next day:

"In supplement, I authorize Your Excellency to order and take all measures which Your Excellency deems . . . indicated and necessary for the purpose of cutting off the importation of contraband of war into Serbia, taking into consideration the other duties of the fleet."

FOLLOWING these instructions, Admiral Haus concentrated his battle fleet at Pola, ready to meet an attack by one of the enemy fleets.

Because Italy had not come in on the side of the Central Powers, the Austrian ships that were nearing completion at Trieste and Monfalcone, both close to the Italian border, were towed to Pola and the work on them finished there. Work was abandoned on ships that could not be towed away. The job of supporting the Army in Cattaro was left to the old ships stationed at that advance base. Warships and merchant ships in other parts of the world were ordered to get back to the Adriatic, if they could. The Austro-Hungarian merchant fleet was scattered all over the world, and about one-third of its ships were interned in neutral ports or captured by the Western Allies: most of those that did manage to return were sent to Lake Prokljan near Sebenico, where they formed a pool from which ships were drawn when needed to carry troops or supplies. Domestic coastal shipping, of course, much of it in sail, continued as before.

For the first few days of August the situation in the Mediterranean was confused on both sides. Germany declared war on Russia on 1 August, and on France on 3 August, and England joined her Entente partners the next day. Also on 3 August, Italy declared her intention of remaining neutral and, although Austria-Hungary was at peace with the Entente powers until 12 August, she ordered general mobilization on 4 August. Montenegro, Serbia's ally and outlet to the sea, did not break off diplomatic relations with Austria-Hungary until 6 August.

In spite of the I. & R. Navy's belief that it would have to face a hostile Italy in the Adriatic, Admiral Haus, banking on the war being over quickly, agreed to abandon the shipbuilding program for the current year, returned the funds appropriated for it, and permitted highly trained shipyard workers to be taken into the Army. One 250-ton submarine, built on speculation by Whitehead of Fiume, was purchased and became the *U 12*.

Admiral Haus's belief that the war would not last long proved costly for the Austrian Navy. The navies of the Western Allies and Italy got stronger as the war went on, while that of Austria-Hungary, unable to replace ships sunk or worn out from years of service, deteriorated.

An Austrian warship that did not return to the Adriatic at the outbreak of war was the cruiser *Kaiserin Elisabeth,* then stationed in China. She was too old to engage in commerce raiding and when Japan declared war on Austria on 25 August, two days after beginning war against Germany, she was ordered to take part in the defense of the German colony of Kiaochow. When their ammunition ran out, her crew scuttled her, and then joined the German troops defending Tsingtao on the Bay of Kiao-

One of the two 5.9-inch guns from the old cruiser KAISERIN ELISABETH *stands in its emplacement between the infantry front lines and the heavy battle works of the German forts at Tsingtau, China.*

chow. When that city capitulated on 7 November 1914, the men were taken prisoner and sent to internment in Japan.

The largest part of the French Navy was its Mediterranean Fleet commanded by Vice Admiral Boué de Lapeyrère, who became also, under the terms of the Anglo-French Naval Convention of 6 August, commander-in-chief of the Allied fleets in the Mediterranean. For the first few days of the war, the chief concern of the French fleet was the safe transfer of the French 19th Army Corps—80,000 officers and men—from North Africa to France. In the meantime, British cruisers under Admiral Sir A. Berkeley Milne watched the entrance to the Adriatic.

THE GOEBEN AND THE BRESLAU

ALTHOUGH they had no base in the area and were dependent on the ports of their allies, the Germans had, since 1912, kept two ships in the Mediterranean to protect their growing interests in that region. In August 1914 they were the battle cruiser *Goeben* and the light cruiser *Breslau,* both quite new, and commanded by Rear Admiral Wilhelm Souchon.

In 1913 the members of the Triple Alliance had agreed that, when hostilities began, the first task of their fleets would be to keep the French 19th Army Corps bottled up in North Africa. The plan called

for the three fleets to rendezvous near Messina, Sicily. Apparently, no decision had been made by the German and Austrian commanders as to what they would do if Italy refused to co-operate. So, when Admiral Souchon sailed into Messina on 2 August 1914 in anticipation of war with France—declared the next day—and found neither the Italian nor the Austro-Hungarian fleet there, he decided to act alone. He went to Algeria, on 4 August shelled the French embarkation ports of Bône and Philippeville, and on 5 August returned to Messina to coal. Still, no allies had arrived.

Since Berlin could not make up its mind where Admiral Souchon should go, he made up his own mind: he would sail to Turkey and persuade the Ottoman government to throw in its lot with the Central Powers. But, by this time, Germany was at war with England and he was surrounded by enemy forces. Both Souchon and the German naval staff in Berlin sent messages to Admiral Haus at Pola urging him to come to Messina at once and help the German ships to escape Admiral Milne, whose principal ships were three battle cruisers, each roughly the equal of the *Goeben*.

Admiral Haus was in an embarrassing position. The 1913 agreement had put the ships of the Triple Alliance in the Mediterranean under his command, but only a part of his fleet was ready for action, the Italians on whom the agreement largely depended were not co-operating, Austria-Hungary was not yet at war with either France or England, and he had strict orders from the Foreign Ministry to avoid for the time being "any kind of unfriendly attitude toward British ships or goods." This injunction was followed by an even more specific directive from Archduke Frederick:

"Since the Ministry of Foreign Affairs hopes to avoid war with England, and any action against English ships would bring about such a war, it seems that support of the *Goeben* and *Breslau* should be undertaken only if these ships should come into the Adriatic and put themselves under our protection, or if they should enter our territorial waters."

THE Admiral had no choice but to turn down the requests of his German ally that he go to Messina. On 6 August the German naval staff advised him that the two German ships had left Messina and would probably try to enter the Adriatic. Upon receipt of that message, Admiral Haus left Pola with all available ships and steamed south to meet them. Admiral Souchon, however, did not try to enter the Adriatic, but headed for the Dardanelles. Haus returned to Pola.

The escape of these two German ships in spite of the crushing superiority of enemy fleets in the vicinity showed, among other things, a lack of co-ordination between the British and French navies. That there was not only a lack of co-ordination but a complete failure of understanding between Austria-Hungary and Germany, was demonstrated shortly thereafter when the German naval staff suggested that the whole I. & R. fleet go to the Black Sea to fight the Russians, and to try to influence the Balkan nations in favor of the Central Powers.

Even if her fleet had been strong enough to undertake such an expedition, Austria-Hungary would not have agreed to the suggestion. The chances are that the Austrians could have defeated the Russian

fleet, but that would not have justified leaving the coast of the Empire undefended, with a possibly hostile Italy on the flank and vastly superior Allied forces between the Austrian fleet and its base.

Germany's proposal was comparable to Austria-Hungary suggesting that the German High Seas Fleet sail down the English Channel and through the Strait of Gibraltar to attack the "soft underbelly" of France. It is hard to believe that any German admiral would have considered doing such a thing. Only ignorance or disregard for the interests of the Dual Monarchy could have prompted the German proposal.

The *Goeben* and *Breslau* episode is sometimes used by the Germans as a reason for belittling the accomplishments of the Austro-Hungarian Navy. But considering its size, its opportunities, and the odds against it (British superiority over the Germans in the North Sea was about four to three; the prevailing Allied advantage in the Mediterranean was four to one), the I. & R. Navy was as active and aggressive as the Imperial German Navy.

ACTION ON THE RIVERS

WORLD War I began when the monitor *Temes* of the Austro-Hungarian Danube Flotilla opened fire on the defenses of Belgrade. The first shot was fired at 0220 on 29 July 1914 from one of the monitor's 4.7-inch guns, and was soon followed by fire from two other river monitors, the *Bodrog* and the *Szamos*. From that day until the end of the war, the Danube Flotilla participated in every major operation that depended on the large rivers of Austria-Hungary and her eastern neighbors. Except for the river gunboats in the American Civil War, the Danube Flotilla was probably more active and successful than any other river force in history.

Both Romania and Russia also had river warships, but the Danube Flotilla rarely met any of them. The obstacles it did face included enemy troops, artillery, mines, and barricades—and its own Army commanders' ignorance and inexperience concerning the operations and potential of a waterborne force. As mentioned previously, the Flotilla was under the direction of the commanding general of the army in whose support it was operating.

MANY of the Army's operations could not have succeeded without the co-operation of the Danube Flotilla. Every time the Army moved across a river in either direction, the Flotilla was there to cover the maneuver. By keeping the rivers cleared of mines and obstructions, it enabled supplies to keep flowing to advancing armies, and, after the defeat of Serbia, opened up communications with Turkey, by way of Bulgaria.

Actions in which the Danube Flotilla took part included the first Austro-Hungarian offensive against Serbia and the retreat therefrom; the renewed attack on Serbia in the autumn of 1915; the shelling of Giurgiu and sinking of two patrol boats after Romania declared war on Austria-Hungary on 27 August 1916; and the demolition of a bridge across the Danube at Rajhovo, which prevented the Romanians from carrying out a planned attack on

the Central Powers from the rear.

After the defeat of Romania in 1917, the Flotilla was busy clearing the lower Danube for traffic, capturing towns and installations before the enemy could destroy them, and escorting supply ships. Entirely new tasks were piled on when, at the end of 1917, troops of the Central Powers proceeded to occupy the Ukraine. There being no ships to help the armies operating along the rivers of southern Russia, several monitors were sent to the Bug and Dniepr rivers and went as far as Aleksandrovsk, north of Rostov, on the Sea of Azov. To get to their destination, the monitors crossed the Black Sea—no mean achievement for the flat-bottomed, low-freeboard river boats.

The last commander of the Danube Flotilla while it was under the Austro-Hungarian flag, Lieutenant Commander Olaf Richard Wulff, later Royal Hungarian vice admiral, summarized its work in the following words:

". . . it covered and supported three mighty river crossings, stopped the Serbians at a critical moment on the right bank of the Sava, frustrated a dangerous attack on the rear and flank of Mackensen's army by an audacious operation, twice made the entire length of the great Danube safe for navigation, and finally, in the Black Sea and the Ukrainian rivers, offered military and economic help . . ."

A little Russian submarine, captured by the Austro-Hungarian Danube Flotilla near Galatz, Romania, quite some miles upstream from the mouth of the river, lies alongside the Austro-Hungarian armed river steamer Samson.

THE BLOCKADE OF MONTENEGRO

IN 1914 the primary task of the Austro-Hungarian fleet was to blockade the tiny principality of Montenegro on the south-eastern coast of the Adriatic, starting on 10 August. Its secondary task was to silence the guns on the 5,800-foot Lovčen Mountain, from which the Montenegrins commanded the Austrian fortifications of Cattaro and observed every move made in the Gulf below.

This surveillance of their actions plus the short steaming range of their ships made it almost impossible for the Austro-Hungarians to carry out surprise night attacks on the British and French ships blockading the Strait of Otranto. In order to attack the Allied ships during darkness, the Austro-Hungarians would have had to leave Cattaro in daylight, thus giving time for their intended victims to be warned.

Both France and Great Britain declared war on Austria-Hungary on 12 August. Two days later Vice Admiral de Lapeyrère, who was at Malta with the French Mediterranean Fleet, was instructed to operate in the vicinity of Cattaro, to break the Austrian blockade of Montenegro; he was not to go as far north as Pola. Consequently, the French fleet accompanied by two British cruisers and 12 destroyers steamed towards the Montenegrin port of Antivari (Bar) with the intention of raising the blockade.

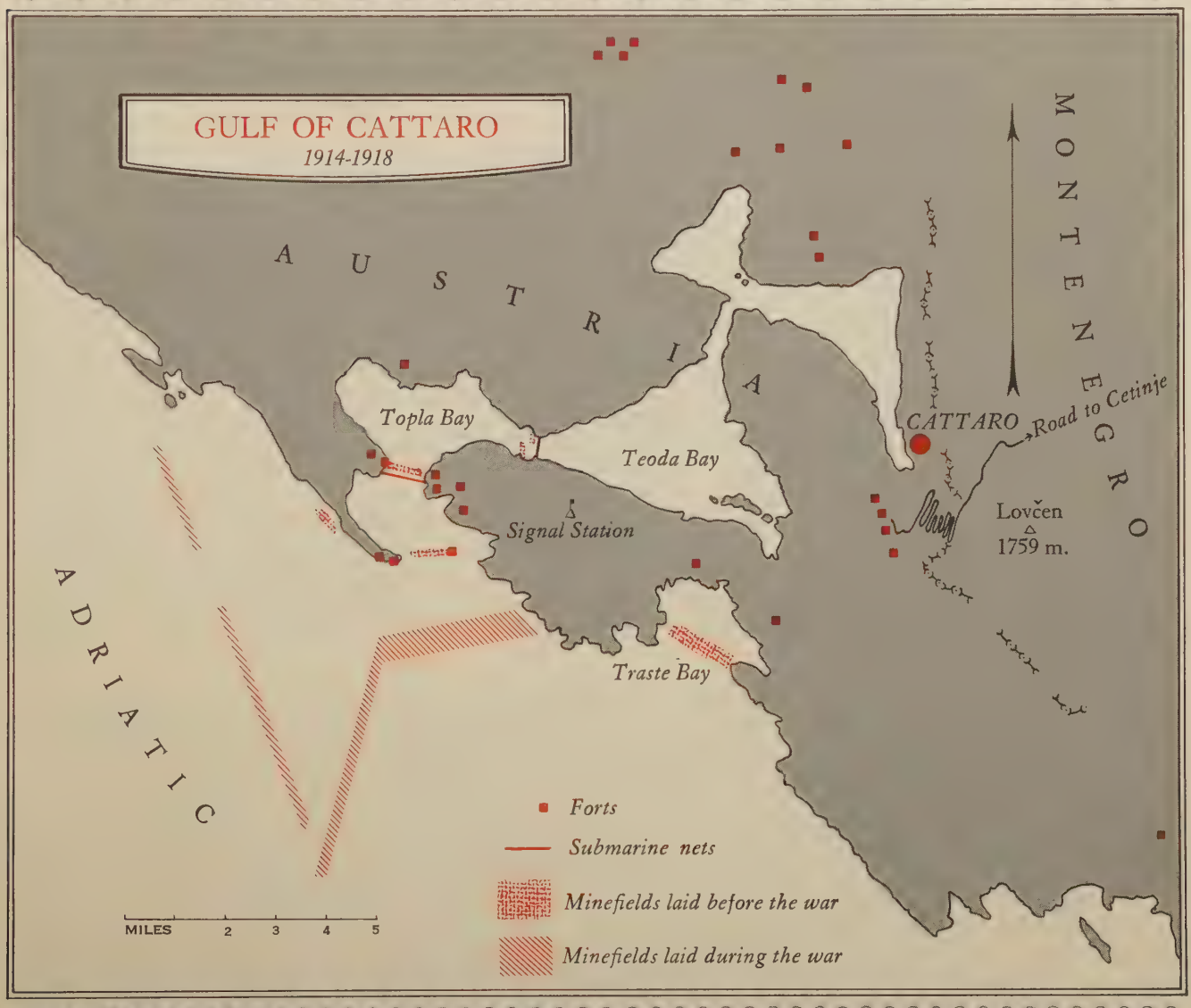
On the morning of 16 August, the small cruiser *Zenta* and the 400-ton destroyer *Ulan,* on blockade duty, sighted the French battle fleet escorting a supply ship to Antivari. The French battleships, armed with 12-inch, opened fire far beyond the range of the *Zenta's* 4.7-inch guns. It was not long before the *Zenta* was hit and her engines disabled. Her speed, 20 knots when she was new before the turn of the century, dropped to zero. But she went on firing until she began to sink and Commander Paul Pacher ordered abandon ship. He left the ship thinking he was the last to do so but, when he saw some of his men still on board, he returned to the burning ship and stayed until the last survivor had left. Soon afterwards the *Zenta,* Imperial and Royal flag still flying, sank.

Meanwhile, pursued and shelled by battleships, cruisers, and destroyers, the *Ulan* sped away to the north. Her pursuers closed to 4,500 yards but gave up the chase when she neared the Gulf of Cattaro. She escaped without damage or loss of life.

Though the French lifted the six-day-old blockade of Montenegro, it was not a proud day for them: it had taken their whole fleet, with 500 guns, to destroy one small, elderly cruiser. And they had let the destroyer escape.

In the next few months light Austro-Hungarian ships attacked Antivari many times. Their targets were the radio station, troop positions, supplies accumulated on the docks, and the Montenegrin royal yacht *Rumija,* which was used to tow sailing boats carrying supplies from Italy to Montenegro.

Allied freighters supplying Montenegro were escorted in by French warships and, sometimes, while they were unloading at Antivari, Admiral de Lapeyrère would stage a demonstration against Cattaro, but seldom with any effect. For a time the French high command contemplated operating in concert with the Montenegrin Army to seize Cattaro. The port would have made an excellent base for French operations in the Adriatic, and early in the war it probably could have been taken without much trou-


GULF OF CATTARO
1914-1918
AUSTRIA
MONTENEGRO
Topla Bay
Teoda Bay
Signal Station
CATTARO
Road to Cetinje
Lovčen
1759 m.
Traste Bay
ADRIATIC
Forts
Submarine nets
Minefields laid before the war
Minefields laid during the war
MILES
2
3
4
5

The KAISER KARL VI, *an elderly armored cruiser, engages Montenegrin artillery on the third day of war in the Gulf of Cattaro. The day was calm and haze interfered at first with the firing.*

ble. Its garrison had no more than 10,000 troops and the ships based in the harbor were all old, whereas the French had some 12,000 men available, not counting the Montenegrin Army. The plan was for old ships to support the landings, covered by the main fleet in case Admiral Haus and his ships should come down from Pola. But, possibly because of the desperate situation on the Western Front, the plan was never carried out, and the Western Allies missed an opportunity that did not recur.

Montenegrin batteries inflicted heavy damage on Cattaro and on the ships lying there, and made it urgent for the Austro-Hungarians to find a way of silencing them. So, on 21 October, shortly after French heavy guns had reinforced the batteries on the Lovčen, the pre-dreadnought battleship *Radetzky* was sent down from Pola to Cattaro. She was heeled over to give her four 12-inch guns sufficient elevation to reach the emplacements on the mountain heights, and in a few days the enemy guns were silenced. Several weeks later, the French left the country, bequeathing their guns to the Montenegrin soldiers, who held out until the following January.

THE FRENCH FLEET IN THE ADRIATIC

IN their Adriatic operations, the French were handicapped by the same obstacle that kept the Austro-Hungarian fleet from going after them: distance. With Malta their nearest base, the French could not stay in the Adriatic for any length of time, because even the large ships used up too much of their coal just in going there and getting back. Before long, however, France obtained the use of harbors in the Greek Ionian Islands and this helped considerably.

On a number of occasions the French fleet did go as far north as Pelagosa and Lissa, and landed parties to destroy navigational lights and telegraph systems on the islands. But by the time the Austrians got down from Pola, they had withdrawn.

The Austro-Hungarian naval command became familiar with the pattern of these French expeditions and should have been ready to meet the one to Lissa that took place on 1 November. If action had been taken as soon as the French were reported off Cattaro, what must be considered one of the gravest failures of the Austro-Hungarian Navy might have been avoided. But this was not done and the most favorable opportunity to fight the French, or any other fleet, was lost. It is true that French forces outnumbered those of the Monarchy by at least three to two, but they were far from their base, whereas the latter were in home waters. Furthermore, the French ships were worn by months of strenuous, if largely fruitless, activity, while the I. & R. fleet had been scarcely used. There was another factor on which the Austrian admiral could have capitalized: the French admiral had detached several battleships and cruisers to the island of Lagosta, about 40 miles from Lissa, and a surprise attack would have caught him seriously weakened. Tegetthoff would never have allowed such an opportunity to pass.

Unable to leave the Adriatic to fight its enemies, the only way the Austro-Hungarian fleet could hope to have any influence at all on the course of the war was to attack any hostile force that entered that sea.

Three French semi-dreadnoughts of the DANTON *class steam near Lissa during the attack on that island in November 1914. Each of these ships had five funnels and, like all coal-burning ships of the time, created great clouds of smoke.*

It cannot, of course, be assumed that victory would have been the outcome of an encounter on 1 November 1914, but the chances for it were good, and had it been so, even at considerable cost, the effects could have been far-reaching: it might have kept Italy, then preparing to enter the war, out of it; it might have significantly impressed the Balkan nations and opened the way into the Mediterranean for Turkey and Austria-Hungary; it would have done a lot to raise sagging morale at home.

The only unit that had orders to attack the enemy if it could was the 1st Torpedo Flotilla, stationed at Sebenico. And the only thing these small ships could do was to try to lure the French into the minefields around Sebenico, but instead of proceeding north and obliging the flotilla, the French fleet turned south and left the Adriatic.

SUBMARINE WARFARE

FROM the early days of the war there was considerable submarine activity on both sides. French submarines made many attacks on Austro-Hungarian shipping along the coasts of Montenegro and Albania, but did not sink any ships. They tried many times to enter the Gulf of Cattaro and succeeded on 19 November 1914 when the submarine *Cugnot* got right into the port without being detected. Nothing was achieved, however, since she was sighted and chased before she had time to do any damage.

The old battleship *Marceau* was stationed at Plateali on the Greek island of Vathy, near the mouth of the Adriatic, and used as a mother ship for French underwater craft. On 16 December the submarine *Curie* was towed by the armored cruiser *Jules Michelet* from Plateali to the latitude of the island of Pelagosa—a distance of some 350 miles. From there, she went on to Pola under her own power, spent 19 December reconnoitering the port defenses, and made her way through the minefields by following an Austrian torpedo boat. On the following day, as she tried to penetrate the inner port, she became entangled in the net protecting the entrance. The harder she tried to escape her trap, the more entangled she became and, when the air in the *Curie* became so foul that it made her crew ill, her commanding officer, Lieutenant O'Byrne, decided to go to the bottom and prepare to surrender.

The disturbance of the net had been observed on the surface, and when the *Curie* finally emerged, the Austrians were waiting for her. She was sunk by fire from shore batteries and small vessels guarding the nets, and her crew taken prisoner.

Eventually raised, repaired, and re-equipped, the 400-ton *Curie* became the *U 14,* Austria-Hungary's largest submarine.

Repair of the *Curie* gave the Austrians many more headaches than were usual in putting a sunken submarine back into shape. Most of these extra problems arose from the amazing lack of consistency with which she had been built. There was no standardization concerning such things as which way valves should be turned to open them; some opened by turning to the left, some by turning to the right; some cocks were closed when the handle lay along the pipe, others were open when the handle was in that position; some switch handles went up to close switches and others went down. Further, her torpedo launching frames were out-

Lieutenant Durrigl, first officer of the submarine U 29, *motions to the men in the lifeboat from the sinking British freighter* MASHOBRA. *The survivors were sent to safety a few hours later in another ship.*

board and, when tested, were shown to be out of line with the keel by about 7.5°. Had all these things not been corrected, they would have presented the *Curie's* Austrian crew with nothing short of a nightmare. But they were corrected, and when the submarine was returned to the French Navy after the war, a French officer remarked, "The Austrians transformed a floating coffin into a workable submarine."

Imperial and Royal submarines were as active as their limitations of range and speed permitted. Their lack of speed frequently made it impossible for them to be in position in time to torpedo a target, but such was not the case with the *U 12* on 20 December, the day the *Curie* tried to force Pola. On that day the *U 12,* the submarine bought from Whitehead at the beginning of the war, commanded by Lieutenant Egon Lerch, sighted the French fleet engaged in tactical exercises off the coast of Albania. As the *U 12* watched the proceedings, there came a moment when all the French ships were stationary. Lerch jumped at his opportunity. Maneuvering into position some 600 to 800 yards from the French flagship *Jean Bart,* he fired. One of his torpedoes hit the powerful new battleship near the bow. She returned to Malta for repairs.

The attack had taken the French completely by surprise. They were under the illusion that the Austrian boats were too small to operate that far from Pola. Thereafter, they withdrew their battle-

Lieutenant Georg Ritter von Trapp

ships to Cephalonia in the Ionian Islands, and left the blockade of the Strait of Otranto to cruisers, which they ought to have done in the first place. Never again did French battleships venture into the Adriatic.

Many of the Austrian submarine attacks failed in their purpose, but another successful one came in April 1915. For several days, the *U 5,* commanded by Lieutenant Georg von Trapp, who later founded the Trapp Family Choir, maneuvered in vain while the armored cruiser *Léon Gambetta* followed a nightly pattern of courses at six knots in the Strait of Otranto. Although three similar British cruisers had been sunk by the German *U 9* off the Dutch coast just six months previously, the *Léon Gambetta* had no protecting screen of destroyers and, on 27 April, Trapp saw his chance. He attacked and sank her before she had time to signal what was happening. She was the flagship of Rear Admiral Sénès, commanding the Second Cruiser Division, and when he saw the crew beginning to panic, he called out: "Don't be in such a hurry; the boats are for you; as for us, we shall stay here." And stay they did. He and all the ship's officers were among the 684 men who went down with her. It was some days before the French learned of the loss through the Italians who had picked up some of the survivors.

After the sinking of the *Léon Gambetta,* the French fleet went south to Pylos in southern Greece, and continued to blockade Otranto from there. A mighty fleet had been driven from the Adriatic by a few small submarines.

THE DARDANELLES CAMPAIGN

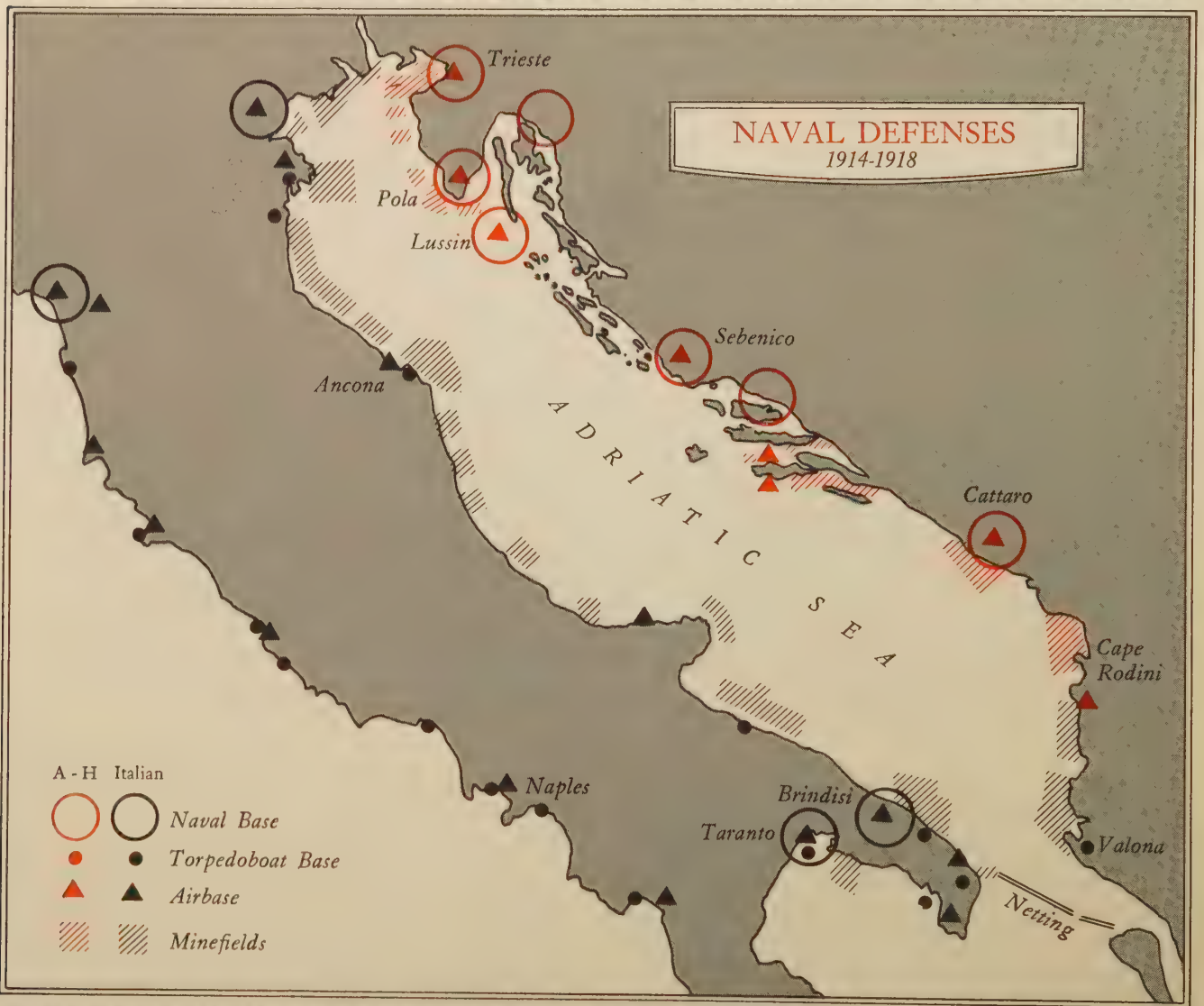
ALTHOUGH the Allied attack on the Dardanelles, which began in February 1915, had no direct effect on the Austro-Hungarian Navy, two things connected with it are pertinent to this history.

First, the Germans, as well as some Austrian authorities, again urged that the Austro-Hungarian fleet be sent to the Dardanelles. The fleet (really, only the better battleships and perhaps some of the

The U 5 *enters the Gulf of Cattaro in April 1915 after sinking the 12,416-ton French armored cruiser* Léon Gambetta. *The submarine's crew is at quarters for entering port.*

cruisers) would have had to break through the French blockade at Otranto, steam past the French bases in Greece, come within striking distance of British ships at Malta, and sail more than 1,000 miles, most of the way through hostile waters, not only without a protective screen of torpedo boats, but burdened with a slow and cumbersome fleet train. When it got there, it would have had no facilities for repair and maintenance, and it would have had to face strong opposition. In fact, nothing that had happened invalidated earlier arguments against such a venture.

Second, the German naval staff requested that Austro-Hungarian submarines be sent to the Dardanelles. Austria-Hungary had seven U-boats, but only two of them were fit for service at the time, and neither of them had sufficient range to reach Turkey under her own power. To remedy this situation, the Germans dismantled five small boats and sent them by rail to Pola. They became the Austrian *U 7*


NAVAL DEFENSES
1914-1918
Trieste
Pola
Lussin
Sebenico
Ancona
ADRIATIC SEA
Cattaro
Cape Rodini
Naples
Brindisi
Taranto
Valona
Netting
A - H Italian
Naval Base
Torpedoboat Base
Airbase
Minefields

through *U 11*. Three of them were to be sent to the Dardanelles and for that purpose they were returned to German control. However, since their radius of action was only 1,200 miles on the surface, they also were too short-legged to go all the way to Turkey on their own. Nevertheless, in an effort to comply with the German request, the scout cruiser *Novara* set out on 2 May with one of them, the *U 8,* in tow. She passed undetected through the Strait of Otranto and—thanks to the earlier work of Austrian U-boats—did not sight any French ships until she was west of Cephalonia. At that point she cast off her tow and hastily returned to Cattaro. The *U 8* completed the 475 miles to the Dardanelles under her own power and without incident, arriving on 11 May.

A few days later, another of the boats sent by the Germans, the *U 7,* was towed part way to the Dardanelles by the 800-ton destroyer *Triglav* and she also reached her destination without incident. A third boat, which would have been the Austrian *U 9,* was never seen again after she left the Adriatic.

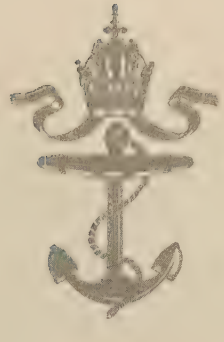
Another form of German-Austrian co-operation began on 13 May when a larger German submarine, the *U 21,* having passed through the Strait of Gibraltar, steamed into Cattaro to refuel. She had sailed all the way from Germany and was on her way to the Dardanelles, where she later sank the old British battleships *Triumph* and *Majestic*. From then on, Cattaro was used as a base for German submarines operating in the Mediterranean.

Had Austria-Hungary been able to take delivery of the larger boats she had building in Germany when the war broke out, her shortage of submarines would not have been so acute. Those boats, which had a surface displacement of 685 tons and a surface speed of about 16 knots, were taken over by the German Navy. By way of compensation, the Germans later sent several 127-ton boats with a surface speed of only six knots, but even these small craft had not arrived by the time Italy entered the war.

NAVAL warfare in the Adriatic during the ten months before Italy entered the war had no marked effect on the course of events. There were more than a million tons of naval ships in the Mediterranean alone, but for reasons already given, the fleets were reluctant to bring about a decisive clash. This reluctance did not change after Italy joined the Western Allies in May 1915. It seemed as though the navies in the Mediterranean, big as they were, no longer thought of fighting naval battles, and were content to serve as adjuncts to their respective armies.

NIGHT DESTROYER ACTION, 1916

Painting by A. Ramberg



CHAPTER VIII

The War at Sea and in the Air 1915-1916

IN JUDGING ITALY'S ABOUT-FACE, it must be remembered that there were two important elements that would make her want to fight, rather than aid, Austria-Hungary: she considered that certain Austro-Hungarian territory was rightfully hers—even though parts of it had been Austrian for more than 600 years; she was anxious to avenge the defeats of Custozza and Lissa. Equally, if not more, important was Italy's complete dependence on imports to meet her basic needs, imports that had to come by sea and that could not be supplied by the Central Powers. Had she joined the Central Powers, she would have been at the mercy of Great Britain and France, who could at any time have blockaded the Italian peninsula and reduced the country to impotence. On top of the foregoing, the Western Allies held out hope that Italy would be able to expand her colonial possessions.

In the very early days of the war, as the price for her benevolent neutrality, Italy demanded far-reaching concessions from Austria-Hungary: the immediate cession to Italy of South Tyrol, Trieste, Istria, and parts of Dalmatia, even though much of that territory was inhabited either by German or Slavic peoples. When Austria-Hungary declined to make such enormous sacrifices, which would have cut her off from the sea, dismembered her, and spelled her doom as one of the great powers, Italy began to negotiate with the Western Allies. By the terms of an agreement reached in April 1915, Italy was promised all the Austro-Hungarian lands she coveted, plus confirmation of her hold on the Dodecanese Islands, which she had seized from Turkey. Additionally, she was promised the Turkish province of Adalia and extension of her territories in Libya, Eritrea, and Somaliland.

During the negotiations, Italy had been preparing to enter the conflict, and by the time she did so, her naval building program was almost completed, and her army was ready to strike. As a hedge against the possibility of an Austrian victory, she had in September 1914 occupied the Albanian port of Valona, without provoking Austrian reaction. Possession of this port later proved a great asset in maintaining Allied control over the southern Adriatic.

A naval convention concluded in Paris on 10 May 1915 between Italy, Britain, and France established two "Allied Fleets." The First Fleet, to be based on Brindisi, was to consist of part of the Italian battle fleet, plus from the French 12 destroyers and six submarines, and from the British four pre-dreadnought battleships, four cruisers, and minor craft and airplanes. This inter-Allied force was to be commanded by Vice Admiral Luigi di Savoia, Duke of Abruzzi, commander-in-chief of the Italian fleet, who was to be in charge of all plans and operations in the Adriatic.

The Second Fleet, also a combination of French, British, and Italian ships, was to be under the commander-in-chief of the French fleet, and was to be prepared to support the First Fleet whenever necessary. The ships were to be based on Taranto, Malta, and Bizerte, according to need. Naturally, all Italian ports were at the disposal of the Allies.

If the First Fleet should move into the northern Adriatic, it would be based on Venice, where there were already three old battleships, two armored cruisers, 11 destroyers, and 13 submarines, and the Second Fleet would move up to Taranto and Brindisi.

When the convention was signed, Italy had 12 battleships (four of them dreadnoughts, with two more to be completed a few months later), nine armored cruisers, ten small cruisers, and more than 30 destroyers. This force totaled some 300,000 tons, as compared to about 230,000 tons for the Austro-Hungarians. Only in seaplanes did the I. & R. Navy have an advantage over Italy: it had about 60 to Italy's 15. The latter, however, had two airships. More importantly, the Austrian air crews had already had several months of combat experience, the Italians none. But by the end of 1917, naval air superiority had been lost to Italy by a wide margin.

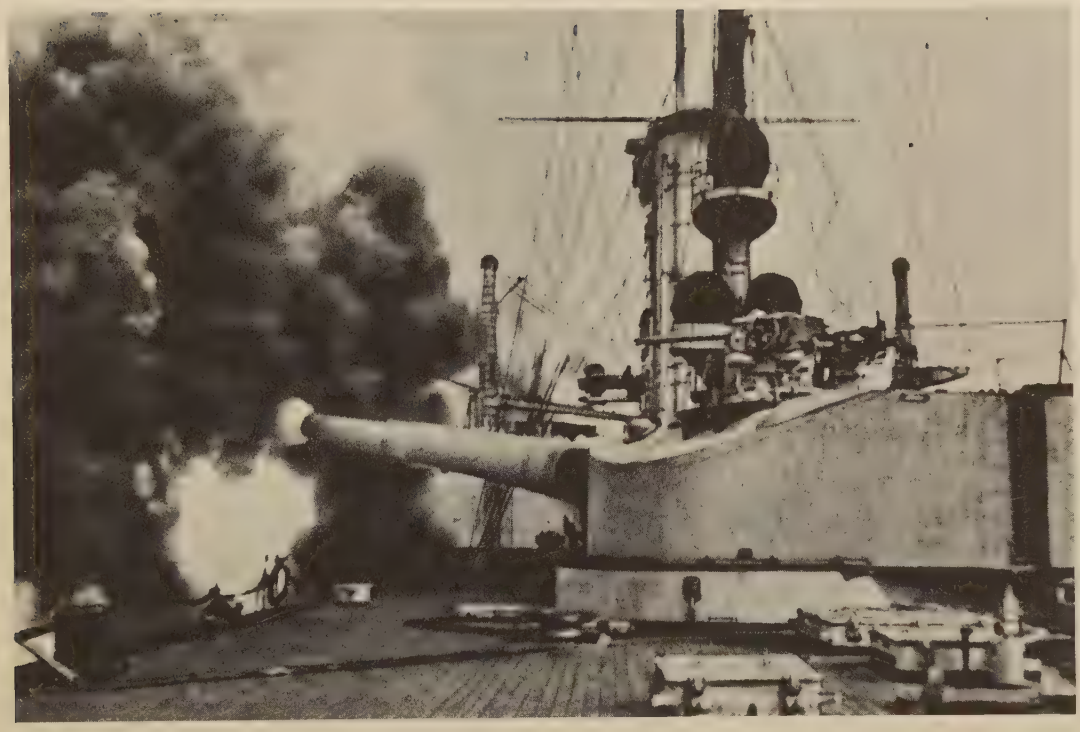
At the Paris conference of May 1915, the new allies discussed ways of using their crushing naval advantage. The Italian delegate had a plan for gaining absolute control of the Adriatic by annihilating the Austro-Hungarian fleet. But the other members of the conference were less enthusiastic for energetic action, and it was finally decided that the Allied fleets would not take the offensive until the Italian armies had advanced far into Austria-Hungary. Since they never did, the ambitious naval plans proposed at the conference were not implemented, and no Italian or Allied battle fleet ventured very far into the Adriatic until after the war was over.

Italy's naval objectives remained approximately those proposed by the Italian delegate to the Paris meeting: to annihilate the Austro-Hungarian fleet, and occupy the important ports along the Monarchy's coast—a mission similar to that which her Navy had in 1866. But she was not anxious to take the offensive all by herself, and, in view of the attitude of her allies, made no serious attempt to do so.

On 23 May 1915, Italy declared war on Austria-Hungary.

ATTACK ON ITALY'S EAST COAST

ITALY'S declaration was expected in Vienna to be quickly followed by a naval attack, and the Austro-Hungarian Navy was prepared. Scouts were on station along the line Cape Gargano-Pelagosa-Lagosta to warn of the approach of Italian ships. But Admiral Haus, who had been passive when he could



The after main battery turret of the pre-dreadnought battleship RADETZKY, *firing on a railroad bridge near Fermo, Italy. Austro-Hungarian ships attacked the Italian coast the day after Italy declared war on the Empire.*

have attacked the French fleet, now had some aggressive plans of his own. Within two hours of Italy's declaration, his fleet was under way to attack the railroad along the Italian east coast. Haus' purpose was to delay the deployment of the Italian Army by destroying its transportation. During the night, the fleet sighted the dirigible *Città di Jesi,* which was so slow-moving that the ships were able to chase it back to Italy. Other than that, there was no sign of the enemy.

Off Ancona, the fleet deployed to its assigned stations, north and south. Two destroyers went right into the port of Ancona, torpedoed a steamer, and shelled railroad and port facilities. In quick succession, the main body of the fleet approached and attacked Ancona, shelling shore batteries, wharves, warehouses, oil tanks, radio and semaphore stations, barracks, and other targets.

ELSEWHERE, too, Austrian ships were busy. The cruiser *Novara* and the destroyer *Scharfschütze* went north to the new torpedo-boat station at Porto Corsini. The *Scharfschütze* backed into the narrow channel in order to make her attack. Unfortunately, there were no Italian ships at hand to attack, but targets ashore

were shelled. The armored cruiser *Sankt Georg* and two torpedo boats steamed to Rimini, and the battleship *Zrinyi,* also accompanied by two torpedo boats, appeared off Senigallia. No Italian warships were found in or near any of these ports and the Austro-Hungarians destroyed railroad bridges, stations, and harbor facilities, while their seaplanes bombed Venice and chased away the other Italian airship.

The battleship *Radetzky,* the cruisers *Admiral Spaun* and *Helgoland,* and the destroyers *Orjen, Lika, Csepel,* and *Tátra* had gone to screen the ships that had deployed southward from attack. Finding that no such threat existed, they shelled Termoli, Campomarino, the Tremiti Islands, Vieste, Manfredonia, and Barletta. They saw their first sign of the enemy when, as they were leaving the Gulf of Manfredonia, two Italian destroyers appeared. The Austrians gave chase and though one destroyer got away, the other, the *Turbine,* was caught in the fire of the *Csepel, Tátra,* and *Lika.* Hits in her boiler room brought the *Turbine* to a standstill and, as she began to sink, she hoisted the white

Destroyers and battleships of the Imperial and Royal Navy lie in the harbor at Pola, July 1915.

flag. Austrian destroyers picked up some of her crew but, in turn, had to flee when a more powerful Italian force appeared.

These well-prepared and well-executed coastal attacks proved that despite the threat from submarines and mines, naval forces could be very successful in the Adriatic if handled aggressively. In the course of making this point, they achieved Admiral Haus's objective, for they are said to have delayed by two weeks the deployment of Italian troops. The delay gave Austria-Hungary, heavily committed in the Balkans and on the Russian front, time to strengthen her defenses along the Italian border.

The bombardment of their coast had a serious effect on the Italian people. Not only had it been carried out with impunity but it seems to have taken the Italian authorities completely by surprise. Thus, the war had hardly started for Italy when it began to go badly. The people, not knowing that their naval leaders had virtually renounced the use of their fleet, were asking where it was. It was not unlike 1866.

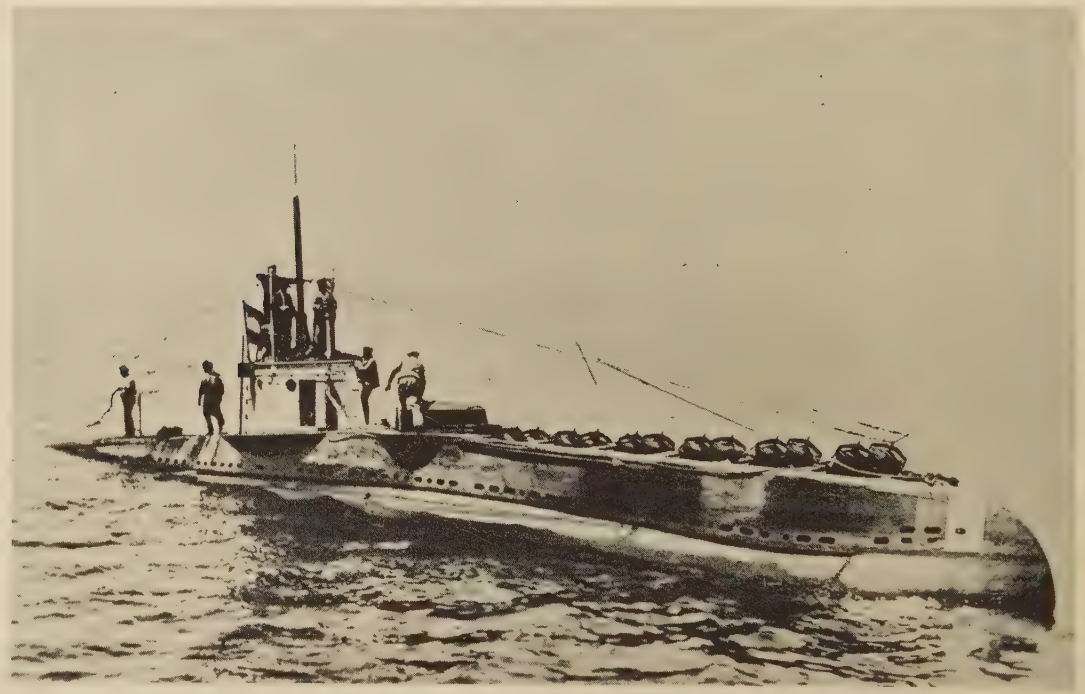
NOT all the action, however, was on one side. Italy declared the Austro-Hungarian coast blockaded. She sent light forces from Venice to shell the shipyard at Monfalcone and to support the Army along the beach. In July, she decided that, in order better to keep a watch on Austrian ship movements, she needed a signal station close to the Austro-Hungarian coast. Hence, though it was hardly suitable for the purpose, she occupied the tiny, barren, and undefended island of Pelagosa, and stationed some submarines there.

In the months that followed, the Austro-Hungarian and the Italian navies made sporadic attacks on one another's coasts, but the Austro-Hungarians did not repeat their invitation to the Italians to come out and fight. The war at sea settled into a series of raids, submarine attacks, and minor operations.

MORE SUBMARINE WARFARE

ON 9 June 1915 when a mixed force of British, French, and Italian ships shelled a signal station at Cape Rondoni in Albania, the 230-ton Austrian submarine *U 4* scored a torpedo hit on the British light cruiser *Dublin,* which put the cruiser in dockyard hands for many months. Then on 17 July while Allied ships led by an Italian admiral were shelling a railroad near Ragusa, the same *U 4* came on the scene, and torpedoed and sank the Italian flagship, the old armored cruiser *Giuseppe Garibaldi.* The Allies never again struck at Dalmatia.

While those events were taking place in the southern Adriatic, other U-boats were at work in the north. Two of the small boats that Germany had sent (German *UB 1* and *UB 15,* later Austro-Hungarian *U 10* and *U 11*), manned at first by German crews with Austro-Hungarian officers as trainees, were almost constantly at sea. On 8 June, the *U 11* sank the Italian submarine *Medusa,* and a few days later she torpedoed and sank the 200-ton torpedo boat *Serpente.* On 27 June the *U 10* sank the 120-ton torpedo boat *5 PN,* and on 6 July the German *UB 14* (sometimes cited as the Austro-Hungarian *U 26,* though never officially transferred from the German



The minelaying submarine U 19, *only 168 tons on the surface, carried 12 mines, all visible on the foredeck. Completed in 1915, her speed, surfaced or submerged, was only six knots. Her crew numbered 14.*

Navy) torpedoed and sank the 10,000-ton armored cruiser *Amalfi* off the Venetian coast. Thereafter, those Italian heavy ships still in the northern Adriatic remained in port.

AFTER Italy's entry into the war, mine warfare was greatly stepped up, and both sides used it offensively as well as defensively. Austria-Hungary had a modern minelayer, the 1,100-ton *Chamäleon,* 21 knots; but other types of craft, including submarines, were used for minelaying. In spite of constant minesweeping, conducted by almost any small steamer that could drag a cable, many warships and merchant ships were mine victims. One of the Austro-Hungarian victims was the *U 12,* the submarine that had torpedoed the French flagship *Jean Bart* off the coast of Albania in December 1914. On 8 August 1915, the *U 12* tried to enter the harbor of Venice in the wake of a steamer and struck an Italian mine. She was salvaged by the Italians. Two days later the Italian submarine *Jalea* fell victim to a mine. The Austro-Hungarian Navy depended largely on old torpedo boats for minesweeping, though a few coastal steamers were also so employed. No minesweepers as such were ever built.

Two days after the sinking of the *Jalea,* the *U 3,* while surfaced, attacked the Italian auxiliary cruiser

Città di Catania. In the ensuing fight, the latter ran right over the *U 3,* and damaged her so badly that she could not dive. French destroyers sank her the next day. Twelve of her crew were rescued, but her commanding officer, Lieutenant Karl Strnad, chose to go down with his ship. On 30 August the *U 5* performed an unusual feat when she captured a ship, the Greek steamer *Cephalonia,* off Durazzo. The steamer and her cargo of 2,000 tons of coal for Italy were taken to Cattaro.

Austro-Hungarian submarines were to capture 13 merchant ships during the war.

THE NAVAL WAR IN THE AIR

FOR the first two years of the war, Austria-Hungary held undisputed command of the skies over the Adriatic. Her efficient aviation industry did not falter until, towards the end of the war, it ran out of some of the raw materials it needed for the manufacture of engines.

During the course of the war, naval aviation used German-made, land-based fighter planes as well as its own seaplanes. Both because the Army never had enough planes to bomb its many targets, and because Italian ships rarely came within bombing range, naval aviators frequently attacked land targets. Indeed, their first war mission, on 12 August 1914, was to bomb Serbian positions on Mount Lovčen. Their first attack on naval ships was against some French vessels in October 1914. Night air operations began in November of that year.

In 1915 seaplanes were a main factor in the defense of Trieste, and the commander of the naval air station there, Lieutenant Gottfried Banfield, was probably the most renowned airman in the I. & R. Navy. Seaplanes from Trieste kept up an almost incessant bombing of Italian troops. Planes based at Cattaro operated mainly against targets in Montenegro and Albania, but they also attacked the Italian mainland.

On 8 July 1915, the Italian dirigible *Città di Ferrara* was shot down by an Austrian plane near Lussin; and a month later the dirigible that the Austro-

Lieutenant Gottfried Freiherr von Banfield

The Italian airship Città di Jesi *collapses on the water after being shot down. The crew was rescued.*

SUMMARY OF A-H AIRPLANES

Lost from warlike causes	132
Lost by accidents	109
Scrapped because of age or inefficiency	189
Existing at end of war	232
Total number of machines in service	662

Hungarian fleet had chased back to Italy a couple of months earlier, the *Città di Jesi,* was brought down by antiaircraft fire near Pola and destroyed. A third airship caught fire the following year and was lost in the vicinity of Lissa.

In September 1916, two Austro-Hungarian flying boats sighted the submerged French submarine *Foucault* near Cattaro. They set a naval "first" by bombing and destroying her, then alighting on the rough sea to pick up her crew of 29.

AUSTRO-HUNGARIAN NAVAL AIR UNITS IN ACTION, 1915-1918

	1915	*1916*	*1917*	*1918*	*Total*
Number of planes (combat ready)	64 (Jan.)	119 (Jan.)	300 (May)	264 (Sept.)	
MISSIONS CARRIED OUT					
Bombing	101(141)*	154(790)	153(797)	55(245)	463(1,973)
Patrol and escort	38(50)	47(91)	77(212)	86(193)	248(546)
Defense and pursuit	8(10)	44(91)	61(114)	44(123)	157(368)
Scouting	33(55)	101(245)	34(72)	27(53)	195(425)
Totals	180(256)	346(1,217)	325(1,225)	212(614)	1,063(3,312)
ATTACKS ON NAVAL UNITS AT SEA					
Battleships and monitors	3	—	13	—	16
Scouts	6	—	2	—	8
Torpedo boats	11	81	39	13	144
Submarines	7	43	1	9	60
Auxiliaries	3	15	7	—	25
Totals	30	139	62	22	253

PERSONNEL: In March 1917 there were 112 officers and engineers and 2,030 enlisted men attached to Austrian naval air units.

*Figures in parentheses indicate number of planes involved in these missions.

ITALIAN NAVAL AVIATION, 1915-1918

	1915	*Added during war*	*At end of war*	*Losses*
Seaplanes	15	1,472	552	114*
Airplanes	—	158	86	7
Airships (for bombing and scouting)	3	46	15	5
Naval Personnel	139		3,325	

AUSTRIAN ATTACKS ON VENICE

Number	36
Machines used	209
Bombs dropped	736

ITALIAN ATTACKS ON POLA

Number	41
Machines used	391
Bombs dropped	677

*Italy's allies lost 32 seaplanes due to enemy action in the Adriatic.

PELAGOSA

EVEN though the Italian occupation of Pelagosa in July 1915 created no great hazard for Austria, it could not be left unchallenged, and on 27 July two Austro-Hungarian cruisers, six destroyers, and two torpedo boats were sent there. Aerial reconnaissance had been unable to determine the strength of the Italian force occupying the island, and the party of some 100 sailors that was put ashore from the Austrian ships proved too small and had to be withdrawn.

A second attack was made on the island on 16 August, again without any conclusive result, but on 9 September when the Austrians went back a third time, they found it abandoned. The Italians had apparently decided that the island was not worth constant defense and had quietly withdrawn. A few

days after the first raid on Pelagosa, one of the submarines the Italians had stationed there, the *Nereide,* was sunk by the *U 5.*

The Pelagosa venture cost the Austrians damage to one torpedo boat: on her way back from the last expedition there, the 200-ton *51 T* was hit by a torpedo from the French submarine *Papin,* but managed to get to port.

ITALIAN BATTLESHIP DISASTERS

TOWARDS the end of September, an internal explosion blew up the old 13,000-ton Italian battleship *Benedetto Brin,* as she lay at anchor in Brindisi Harbor. Investigation revealed that a time bomb had been smuggled aboard by Italian traitors in the pay of

The wreckage of the Italian battleship BENEDETTO BRIN *lies at Brindisi after she was destroyed in the harbor by saboteurs. Notice the clothing still hanging up to dry from the foremast.*

Austria-Hungary, and the incident created considerable excitement throughout Italy.

Although public opinion forced changes in the naval command, a year later, on 2 August 1916, a similar fate befell the modern 22,000-ton dreadnought *Leonardo da Vinci*. A third battleship, the *Regina Margherita,* was lost the following December when she struck a mine off Valona and sank within a few minutes. She and the *Benedetto Brin* were sisters.

EVACUATION OF THE SERBIAN ARMY

As the armies of the Central Powers advanced into Serbia and Albania in the fall of 1915, new problems arose. The aim of the advance was to open land communications with Turkey, which was weakening rapidly under the blows of the Dardanelles campaign and Russian pressure. The offensive quickly overran Serbia and the defeated Serbian Army was forced to retreat into Albania, with the Austrians close on their heels. The Western Allies had to help relieve the distress of the demoralized and exhausted Serbian troops, many of whom were sick and in need of food and clothing. The Allies decided to take them out of Albania to some place where they could be rehabilitated and reorganized. The Italians were given chief responsibility for this operation.

Evacuation started at the end of 1915 and took several months. In spite of numerous raids on the transports by Austro-Hungarian naval forces, about 260,000 persons were moved from Albania to Corfu and elsewhere with only minor losses. It was a difficult operation, exceptionally well executed.

Two of the raids made on the evacuation ships deserve mention. On 5 December the cruiser *Novara* and several old destroyers shelled San Giovanni di Medua (now, Shengjin), then still in the hands of the Western Allies. During a duel with the shore batteries, three steamers and five sailing vessels lying, heavily laden, in the harbor were sunk, and one steamer and about ten sailing ships were damaged or set on fire. On its way back to port, the Austrian flotilla came across the French submarine *Fresnel* stranded on a sand bank, destroyed her, and took her crew prisoner.

On 28 December, when air reconnaissance reported two Italian destroyers about to leave Durazzo for Brindisi, the cruiser *Helgoland* with the destroyers *Csepel, Lika, Triglav, Tátra,* and *Balaton* sailed from Cattaro, 80 sea miles away, to intercept them. On their way south, the *Balaton* rammed and sank the French submarine *Monge,* then picked up all her crew save the captain, who went down with his ship. When they got to Durazzo, the Austrians saw no destroyers so they went into the port, shelled shore installations, and sank several supply ships before both the *Lika* and the *Triglav* struck mines.

Scouting planes from Cattaro made almost daily flights over the Albanian ports and reported on mines, but had not reported those hit by the two destroyers. The *Lika* sank quickly. It looked as though the *Triglav* might be salvaged and the *Csepel* came alongside to take her in tow. Although a heavy barrage of fire from the guns ashore complicated the task of the *Csepel,* she completed the evolution but had to give up when, after getting under way, her propellers became fouled, reducing her best speed to 20 knots. The *Tátra* came up to take over the towing and, while she did so, the *Helgoland,* disre-

garding warnings that submarines were in the area, covered her by keeping up a duel with the guns ashore. When the group was finally ready to leave Durazzo, it steamed slowly north towards the Gulf of Cattaro.

Soon after the attack began, the radio station at Durazzo had reported it to Brindisi, also about 80 miles distant, and the Italians had immediately dispatched two British and two Italian cruisers, five French and four Italian destroyers, armed with 16 6-inch guns, 12 4.7-inch, and ten 4-inch. The towing of the *Triglav* kept the Austrians from making more than six knots, and they were engaged by this Allied force before help from Cattaro, where word of the action had arrived later than it did in Brindisi, reached them.

THE crippled *Triglav* was scuttled when action appeared imminent, but the situation remained desperate for the *Helgoland* and the three destroyers still with her. Though the four Austrians had, between them, only 15 3.9-inch guns, the duel lasted for hours, with ships at times closing to within 3,500 yards of each other. Despite damage to the *Helgoland's* boiler plant, Captain Heinrich Seitz, under cover of smoke, coaxed from her engines two knots more than her designed 27 knots and maneuvered his force out of the trap and away from its pursuers. Night came and he got back to the Austrian coast without any further damage.

Tactically, the operation was brilliant, but it cost Austria-Hungary two destroyers, and the squadron had sunk only one enemy submarine and a few supply ships. The Austrian admiral at Cattaro should have been able to get help to the raiders, but he did not, and he was retired soon after this episode.

It may be asked why larger forces were not sent to make such raids, why they were not supported by heavy ships, and why more action was not taken against convoys evacuating the Serbian troops.

PART of the answer to the last question lies in the ground offensive of the Central Powers into Albania which developed at this time and which had to be supported by the Navy. Austrian troops captured the Lovčen in January 1916, soon after the naval battle just described, and the Gulf of Cattaro, freed from constant observation by the enemy, became the main base for most of the Austro-Hungarian cruisers and torpedo vessels.

In February, however, the land offensive came to a halt following Austria's capture of Durazzo. Albania's best natural harbor, Valona, was left in enemy hands. If the Central Powers could have used Valona, they might have broken the Otranto blockade and perhaps even have forced the Allied heavy ships back from Brindisi. Certainly, if U-boats had been able to operate out of Valona, they would have had an easier time getting at enemy shipping.

The Army's success, incomplete though it was, created so much more work for the Navy that the latter could spare neither time nor resources to pursue the tempting targets. There were more miles of coastline to defend, extensive minefields to be swept and defensive ones to be laid, and ships to be escorted to and from Albania. This last was no mean task,

Year	1914	1915	1916	1917	1918
Voyages of Cargo Ships and Transports north of/south of Gulf of Cattaro	73/—	181/—	845/370	536/933	592/336
Voyages of Escorting Ships north of/south of Gulf of Cattaro	—/—	—/—	500/400	256/843	772/943
Number of Sick Transported	742	—	12,388	60,286	55,345
Vessels Lost	—	—	6	1	2

since the Army in Albania was almost completely dependent on the sea for communication with Austria, not only for supplies, but also for evacuating the large number of troops stricken with malaria. The table above gives an idea of the magnitude of the task.

MOREOVER, as we shall see, the way to the Mediterranean had to be kept clear for the submarines, both German and Austro-Hungarian. This required a great deal from Admiral Haus's tiny force of light cruisers and destroyers.

Why were not larger forces used for the raids that were made? Larger forces were simply not available. It will be remembered that at the outset of the war, Admiral Haus had allowed Austrian shipbuilding programs and facilities to lapse, and no new ships were being built. During the whole course of the war, the Austro-Hungarian Navy completed only four new destroyers and a few submarines. The newest branch of the Navy, aviation, fared much better, for 602 new airplanes were built for the Navy.

Why did not the heavy ships attempt to interfere with the evacuation of the Serbian Army, instead of remaining idle at Pola? Perhaps because the cruisers and destroyers were more suitable for that kind of action. Perhaps because, as it was, the fleet's supplies of coal and other resources were dwindling fast. Perhaps because there was no enemy fleet in the Adriatic with which the battleships could profitably engage. All those reasons had some validity, yet the inactivity of the battle fleet may be considered to have been a serious mistake. All one need do is imagine the outcome of the engagement of 28 December 1915 if some battleships had come to the support of Captain Seitz.

Perhaps the Allied admirals made a mistake, too, in not launching a determined offensive at that time. But they did not even try very hard to interfere with the flow of supplies to the Austrians in Albania.

By about the middle of 1916, the Western Allies became convinced that a tight blockade would starve their opponents into submission, and that therefore

there was no point in taking the risks involved in battle. During the next two years, the German submarine war, which might easily have led to the defeat of the Western Allies, showed that conviction to be extraordinarily dangerous. Certainly, there would have been no submarine campaign in the Mediterranean if resolute action had been taken against the Austro-Hungarian Navy in 1916. Admiral Haus described the reluctance of the Allied navies to take a chance, even when there was an important objective to be gained, as a "pathological phenomenon among our opponents at sea."

On the other hand, although the Germans inflicted heavy losses on the British at the Battle of Jutland, that great encounter in mid-1916 provided striking proof that the Central Powers' fleets could do little to relieve the pressure of the blockade. In light of the Allied reluctance to take risks in the Adriatic, the Austro-Hungarian battle fleet might be viewed as a successful insurance policy for the safety of the Austro-Hungarian coast. Had that fleet been used and destroyed, the insurance would no longer have been in effect, for the risks the Allies feared would no longer have existed.

SUBMARINE WAR AGAIN

THE Central Powers answered the blockade with a submarine assault on Allied shipping. The campaign began in the Atlantic in February 1915, but did not get under way in the Mediterranean until August of that year.

In November, the Germans established a "Submarine Flotilla Mediterranean," with repair facilities and fuel depots at Cattaro and Pola. The German boats were under the operational command of the Austro-Hungarian Navy, and for the first year many of them flew the I. & R. flag, though they were manned by German crews. At one time there were as many as 32 German submarines in the Mediterranean, while Austria-Hungary had a total of 22. When the campaign began, most of the latter were too small to venture out of the Adriatic, but later on,

Admiral Anton Haus

BLACK SEA
Cattaro
29 JUNE
Constantinople
TRACK OF THE U27
29 June-26 Sept. 1918
Aegean Sea
GREECE
TURKEY
Rhodes
Cyprus
MEDITERRANEAN
Crete
14 AUG
13 SEPT
Bengasi
Derna
Haifa
EGYPT
Port Said

a few larger and faster boats became available and joined the Germans in Mediterranean operations.

One of the Austro-Hungarian submarines, the *U 27,* performed quite a feat for a ship which displaced only 275 tons on the surface, when she stayed at sea for 90 days under almost intolerable living conditions, heat, humidity, and toxic gases. She traveled 4,200 miles on the surface and 70 miles submerged, eluded numerous attacks, and sank a number of ships.

GERMAN submarines quickly made their presence felt. In September 1915, they sank 30,000 gross tons of Allied shipping; in October, the figure was 60,000 tons, and in November it rose to 135,000 tons. The best month for the Central Powers in the Mediterranean was April 1917, when their submarines sent 218,000 tons of shipping to the bottom of that sea. In the course of the war, German U-boats sank 1,315 Allied merchant ships in the Mediterranean, totaling 3,096,109 gross tons. Austro-Hungarian submarines sank 94, totaling 190,353 tons. All over the world, 12,000,000 tons were sunk, mostly by U-boats, and mainly in the North Atlantic.

The submarine campaign changed completely the nature of the war at sea. Enemy undersea boats became the chief preoccupation of the Allied navies. In the Mediterranean the critical area was the Strait of Otranto, 36 miles wide at its narrowest point, and in September 1915, in order to close off the Austrian ports, the Allies stretched nets, suspended from fishing trawlers and drifters, across it. Great Britain furnished 65 of the 120 vessels required for this purpose. Drifters spent roughly half of their time on station. Each vessel originally had a net about 1,000 yards long and 10 fathoms deep to form the barricade. When deeper-diving U-boats appeared, deeper nets were provided. Some of the nets had mines attached to them. Several cruisers and destroyers at Brindisi and larger forces at Corfu and other nearby islands were kept ready to go to the assistance of the drifters and trawlers, in case of attack.

In spite of the precautions, the U-boats continued for a long time to come and go at will through the Strait. But their immunity did not last. In May 1916, the Austro-Hungarian *U 6* became the first victim of the Otranto barrage when she was sunk as she tried to get out into the Mediterranean. The barrage was a considerable hazard, at least in the minds of the U-boat crews, yet no other submarine is known to have been destroyed by it. At the end of March 1917, the Austro-Hungarian *U 30* sailed from Cattaro and was never again heard from. She may have been a barrage victim. So may one or two German U-boats whose fate is not known to this day.

After the net barrage was established, getting its own and German boats through the Strait became the primary task of the Austro-Hungarian Navy. After the evacuation of the Serbian Army, there was a lull in the war in the Adriatic, but there was no let-up in the number of supply ships that had to be escorted to and from Albania, and the work of the light surface ships, submarines, and airplanes went on as before.

To prevent ships from leaving, the Allies stationed some of their submarines outside Austro-Hungarian ports, but the practice proved more costly to them than to their intended victims. In July 1916, the Italian submarine *Balilla* was sunk near Lissa by a pair of

Austro-Hungarian torpedo boats, the *65 F* and *66 F*. About the same time, another Italian submarine, the *Giacinto Pullino,* ran aground and her crew was captured. In 1916, Austrian submarines accounted for six other Allied warships. The *U 15* sank the French destroyer *Fourche* between Valona and Brindisi, and the Italian auxiliary cruiser *Città di Messina* near Valona. The *U 6,* which later became the first victim of the Otranto barrage, disposed of the French destroyer *Renaudin* near Durazzo. The Italian destroyer *Impetuoso* and the auxiliary cruiser *Principe Umberto* were both sunk off the coast of Albania, the former by the *U 17* and the latter by the *U 5*. Besides the two destroyers mentioned above, the French lost their submarine *Circe* to the *U 47* near Valona, in September 1918.

No one had expected much of the small Austro-Hungarian submarine force, and its successes came as a surprise to friend as well as to foe.

Allied submarines achieved far less in their campaign against Austro-Hungarian ships. The old torpedo gunboat *Magnet* and the destroyer *Csepel* were

A three-masted bark burns after being attacked by a U-boat. It is a flat calm and the sailing ship could not have escaped even a very slow submarine. Austro-Hungarian U-boats sank 94 Allied merchant ships during the war.

torpedoed, the former by an unidentified submarine, and the latter by the French submarine *Bernouilli,* but both ships, as well as the hospital ship *Electra,* also torpedoed, were saved and repaired.

OTRANTO RAID OF 22 DECEMBER 1916

TWO of the 20 attacks made by the Austro-Hungarian Navy on the Otranto barrage were significant enough to be recounted in detail. On 22 December 1916 the old 400-ton destroyers *Scharfschütze, Reka, Velebit,* and *Dinara* shelled some of the trawlers and drifters forming the barrage, before being engaged by an Allied force that included some of the new Italian 1,500-ton flotilla leaders. As they streaked for home, the Austrian destroyers went on firing and scored several hits on their pursuers. Commander Frochot, senior French officer at Brindisi at the time, wrote in his report of this engagement:

"The *Casque* (750-ton French destroyer) sets course for Cattaro. He does not see the enemy, but knows that the Austrians retreat to their base when attacked, but not because they are scared. Their torpedo craft are admirably led and we saw proof of this that night when, although we took them by surprise, they managed to group themselves and resist us energetically. Yet it would have been insanity for them to risk a fight to the end. They were far south, in danger of being cut off. . . . (by ships coming) from Brindisi, and stood to lose any ships that might have had to slow down on account of damage. That is why they returned to Cattaro. . . ."

Even though they had had to leave the scene of action, and though it subsequently became harder rather than easier for underwater boats to get through the barrage, the Austrians could count that raid a success. They suffered no damage, and by sinking some of the trawlers at the barrage and scaring off the rest, they had enabled a German submarine entangled in the nets, the *U 38,* to escape. By the next day, the surviving trawlers had not yet returned to their stations, and the German *U 52* was able to transit the Strait on the surface without hindrance.

It is interesting to note that the captain of one of the Austrian destroyers engaged on 22 December 1916 was a Pole, another was a Slovene, the third a Czech, and the fourth a Romanian. This shows that, even at that late date in the life of Austria-Hungary, the various nationalities were serving the Monarchy faithfully, bravely, and efficiently, and were operating as a team.

The second noteworthy raid on the Otranto barrage took place in May 1917 and is recounted in the next chapter.

MOTOSCAFI— MOTOR TORPEDO BOATS

IN 1916 a new type of vehicle was introduced to the Austro-Hungarian Navy when Dagobert Müller von Thomamühl designed and built a "hydrokeel" torpedo boat propelled by four engines totaling 480 horsepower and capable of making 40 knots. That invention was not followed up, but the same year, a new weapon, the motoscafi, or motor torpedo boat,

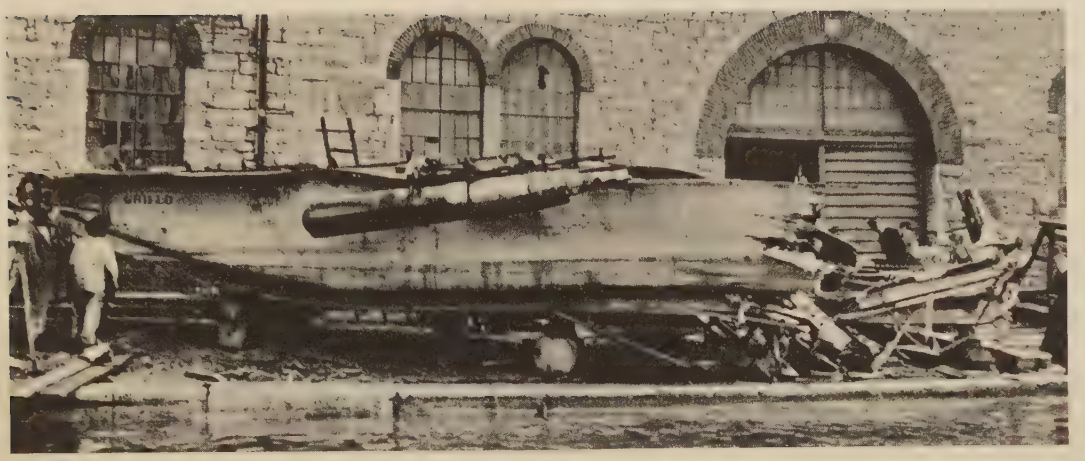
known as MAS, appeared with the Italian Navy. Some 300 of these boats eventually were produced and they were destined to play a major role in the Adriatic. The most numerous class of these boats were 52 feet in length, carried two torpedoes, and could make about 25 knots. Their first success came on 7 June 1916 when several of them entered the harbor of Durazzo and torpedoed an Austrian transport. Early the following November came a daring attack on Fasana, the roadstead of Pola. An Italian torpedo boat towed an MAS to within a few miles of the roadstead, where the motor boat's crew found booms protecting the anchorage. They attached heavy weights to these, which lowered them enough to allow the shallow-draft boat to sail over them. Alone inside the harbor, the MAS cruised about in search of a target for almost three hours before she spotted the old guard ship *Mars* (the *Tegetthoff* of 1878), and fired two torpedoes at her. Neither torpedo exploded and both were found the next day by the Austrians, but the MAS made good her escape and joined her escorts out at sea.

ON 10 December 1917, Lieutenant Luigi Rizzo commanded one of two MAS that got into the Gulf of Trieste. His attack was well prepared, and although the Gulf was shrouded in dense fog he succeeded in finding and cutting through the barricade nets. Then, with the fog as an ally, he approached to within 150 feet of where the 5,600-ton *Wien,* a coast-defense battleship from the previous century, lay at anchor, and torpedoed her. She sank and he escaped. Lieutenant Rizzo had scored the Italian Navy's first major triumph. Up to this time, with the war in the Adriatic more than three years old, Austria had lost nothing larger than the 2,300-ton *Zenta,* sunk by the French fleet in August 1914.

ANOTHER newcomer to the Italian Navy made one daring raid similar to those of the MAS. This was a 36-foot sea tank with chain treads like a land tank that enabled it to cross barriers. This strange craft was called the *Grillo* (cricket) and on 13 May 1918 she almost got into the inner harbor of Pola without being seen. She was just about to negotiate the fifth and last barricade when she was sighted and fired upon. One hit found its mark and disabled her, whereupon she was scuttled by her crew.

Motor torpedo boats would have been ideal craft for the Austro-Hungarian Navy to use in the Adriatic Sea and, interestingly, its successor in that sea, the Yugoslavian Navy, consists largely of such boats. But, except for the experimental hydrokeel craft designed by Lieutenant Commander Müller von Thomamühl, the Austrians could not build any of them because they did not have the proper engines. The best they could do was to try to deprive Italy of hers.

Accordingly, a group of six ensigns and 55 seamen under the command of Lieutenant Josef Veith made an audacious, though somewhat unrealistic, attempt to destroy the MAS lying in the harbor at Ancona. The party landed on the coast north of Ancona and made its way openly to the port. They passed Italians on their way, but the latter took them for British sailors and made no attempt to stop them. When the raiders got to Ancona, however, they were dismayed



The wreckage of the Italian "sea tank" GRILLO *was salvaged after the failure of her attack on Pola in May 1918.*

to find that some of their intended victims had gone and others were not at the moorings where they thought them to be. Undaunted by this setback to his plans, Veith decided to capture the motor boats that were still there, but here, too, he was foiled. Upon approaching closer, he found that their motors were being dismantled for repair. Worse still, before it had time to do any damage, the group was surrounded by soldiers and had no choice but to surrender. It turned out that an Italian-speaking member of the Veith party had betrayed it by reporting its true identity.

THE LAGOON FLOTILLA

THERE are many shallows, or lagoons, along the northern coast of the Adriatic Sea, making it difficult for naval forces to get close enough to lend direct support to land operations. Italian as well as Austro-Hungarian naval commanders had been obliged to turn down requests for such support by big-gun ships. Both sides tried to remedy this situation by organizing flotillas of shallow-draft gunboats, minelayers, and transports, with makeshift marine units composed of soldiers and sailors embarked. By 1917, the Italians were using monitors, some of them British, armed with heavy guns. One, the *Faà di Bruno,* though drawing only six feet, carried a pair of 15-inch guns. The only monitors the Austrians had were serving with the Danube Flotilla, so the old battleships *Wien* (the one which was later sunk by an MAS) and *Budapest* were sent to Trieste to serve the same purpose as best they could. But they drew 21 feet and this meant that they could seldom bring their four 9.4-inch guns within range of desirable targets. However, Austria had many naval planes which, especially since the Emperor had forbidden the bombing of Venice on account of its art treasures, had few coastal targets and were free to hammer almost incessantly at the Italian land front.

THE OTRANTO RAID, 1917

Painting by Johann Seits

CHAPTER IX

The Last Two Years 1916-1918

AN EVENT THAT TOOK PLACE AT the end of 1916 and another that took place early the next year deeply influenced the Austro-Hungarian Navy, the course of the war, and the fate of the Monarchy.

On 21 November 1916, the Emperor Francis Joseph I, the very symbol of the super-national state which he had ruled for 68 years, died at the age of 86. His death broke many of the bonds that had helped to unite the various peoples. He was succeeded by his grandnephew, Charles I, a well-meaning but not very forceful young man, who did not have what it took to make the transition into a new era. His empress, Zita, was of the Italian house of Bourbon-Parma and known to be friendly towards Italy.

Less than three months later, on 8 February 1917, Haus, then a Grand Admiral, died suddenly. Although he was not another Tegetthoff, Admiral Haus had kept the Navy active and was one of the better naval leaders of World War I. By and large, it can be said that under his command the Austro-Hungarian Navy was extremely successful.

The table on the next page shows naval losses suffered by both sides in the Adriatic between 1914 and the time of Admiral Haus's death in 1917.

Vice Admiral Maximilian Njegovan inherited a competent but exhausted Service. It had been at war for two and one-half years, shortages were being increasingly felt, radical socialist and nationalist propaganda was spreading, and victory was nowhere in sight. Apart from the submarine campaign, Admiral Njegovan met with considerably less success than did his predecessor.

Meanwhile, from the viewpoint of the Allies, the lack of progress in the Adriatic, especially the ineffectiveness of the Otranto barrage, caused a good deal of disappointment, and from time to time changes were made in naval high commands. In October 1915 Vice Admiral Dartige de Fournet had replaced Admiral de Lapeyrère as commander-in-chief of the French Mediterranean fleet, and he, in turn, was relieved by Vice Admiral Gauchet in December 1916. At about the same time as Admiral Njegovan took command of the Austro-Hungarian Navy, Vice Admiral Thaon di Revel succeeded the Duke of

NAVAL LOSSES IN THE ADRIATIC, August 1914 to February 1917

AUSTRIA-HUNGARY			*ITALY*		*FRANCE*	
—		*Battleships*	3	50,000 tons	—	
1	2,300 tons*	*Cruisers*	2	18,000 tons	1	12,500 tons
2	1,700 tons	*Destroyers*	4	1,700 tons	4	2,700 tons
4	1,000 tons	*Submarines*	4	1,400 tons	3	1,300 tons
—		*Torpedo boats*	3	400 tons	—	
7	5,000 tons	*Total*	16	71,500 tons	8	16,500 tons

* Not including the 3,900-ton cruiser *Kaiserin Elisabeth* which was scuttled by her crew in Tsingtao, China.

Abruzzi as commander-in-chief of the Italian Navy. Thus, at the beginning of 1917, new leaders faced each other, but there was no change in basic strategy on either side.

OTRANTO RAID OF 15 MAY 1917

BY this time, Austrian and German submarines were having more and more difficulty in getting past Otranto, and to ease the pressure the most important and spectacular Austrian naval raid of all was made on the barrage in May 1917. Under the command of Captain Nikolaus Horthy de Nagybánya, the 3,500-ton scout cruisers *Novara, Helgoland,* and *Saida* sailed from Cattaro to attack the line of Allied drifters, while the 800-ton destroyers *Csepel* and *Balaton* sailed along the Albanian coast in the hope of intercepting a convoy between Valona and Italy.

While still dark, early on the 15th, the two destroyers sighted three steamers escorted by the Italian destroyer *Borea* about 20 miles south of Valona. The *Csepel* opened fire and one of her first salvos disabled the *Borea,* which eventually sank. Meanwhile, torpedoes from the *Balaton* hit two of the steamers and the third was badly damaged by gunfire. It was over in a few minutes, and the Austrians, expecting a powerful Allied squadron to arrive at any moment, steamed northwest and then north, heading by a roundabout route for Cattaro, to avoid an Allied squadron near Durazzo.

It was about the same time, 0340, when the Austrian cruisers came within sight of the drifters on station in the Strait of Otranto—47 of them. Deploying in order to cover as large an area as possible, the cruisers began to attack. As the fishing boats tried to flee, they cast off their nets and these greatly hampered the attackers. Nevertheless, when the

cruisers rendezvoused and turned north on their way home a little before 0600, 14 drifters had been sunk and several damaged.

UP to this point in the encounter, fortune seemed to be on the Austro-Hungarian side, but thereafter it appeared to go over to the Allies. Admiral Alfredo Acton, Italian commander of the scouting force at Brindisi, learned of the Austro-Hungarian attack at 0350, and sent to the scene the 1,800-ton Italian flotilla leader *Carlo Mirabello* and four French destroyers that were on patrol off Durazzo to the north. These were the ships the *Csepel* and *Balaton* wished to avoid. Two hours later, he got under way in the 5,200-ton British light cruiser *Dartmouth,* accompanied by the slightly smaller *Bristol,* the 1,550-ton Italian flotilla leader *Aquila,* and four destroyers. He steamed northwest in the hope of intercepting the Austrians off Durazzo.

Soon after, another force put to sea: the 3,600-ton Italian scout cruiser *Marsala,* the flotilla leader *Racchia* (sister to the *Carlo Mirabello*), the British cruiser *Liverpool* (sister to the 4,800-ton *Bristol*), and five destroyers. Thus, Acton had, scattered about the southern Adriatic, twenty ships armed with 18 6-inch, 12 4.7-inch, and 38 4-inch guns, to pit against the 31 3.9-inch guns belonging to the five Austrians.

The *Mirabello* group, consisting mainly of destroyers, raced south and about 0600 passed the *Csepel* and *Balaton* without seeing them. But it did sight the Austrian cruisers at 0645, and opened fire at 9,000 yards. As soon as the Austrians returned the fire, the Allied flotilla opened the range and shadowed the cruisers, while Italian seaplanes bombed them. None of the planes did any damage, and antiaircraft guns on the Austrian cruisers shot down one of them.

Rear Admiral Nikolaus Horthy de Nagybánya

The *Dartmouth* group, led by Admiral Acton, intercepted the Austrian destroyers about 0800 not far from Durazzo, and opened fire with 6-inch at 13,000 yards. But the *Csepel* and *Balaton,* with their 3.9-inch guns, could not reply until the range closed to within 11,000 yards. When this happened, the *Csepel*

scored a hit on the *Aquila* and disabled her. The Austrians seized their chance and escaped to Cattaro unharmed.

WHEN Captain Horthy's cruisers, steaming north, came into Acton's view at 0900, the latter found himself in the fortunate position of capping Horthy's "T." Curiously, he changed course and steamed north, parallel to his enemy. The Austrians laid down a smoke screen and closed within their guns' range. When the smoke cleared, the two forces were only 5,000 yards apart, the Allies on the starboard hand. With the *Mirabello* group astern of them and the *Marsala* group over the horizon to port, the Austrians were surrounded.

Their encirclement, however, turned out to be less confining than it at first appeared. The *Mirabello* and the French destroyer *Commandant Rivière* were having engine trouble—apparently a frequent occurrence in the Allied fleets—and a foul bottom was causing the *Bristol,* nominally a 25-knot ship, to fall behind. The 27-knot Austrians sped on, firing as they went. Seaplanes from Cattaro and Durazzo circled low overhead and, by a simple system of hand signals, directed the Austrian fire—probably the first naval use of aerial spotting. Two hours after the action started, the *Novara* was brought to a standstill by several hits; her engines were out of operation, her executive officer had been killed and her commanding officer, Captain Horthy, severely wounded. The *Saida,* which had lagged behind the other two, came up and took the helpless *Novara* in tow, while the *Helgoland* placed herself between those two vessels and the main force of the enemy.

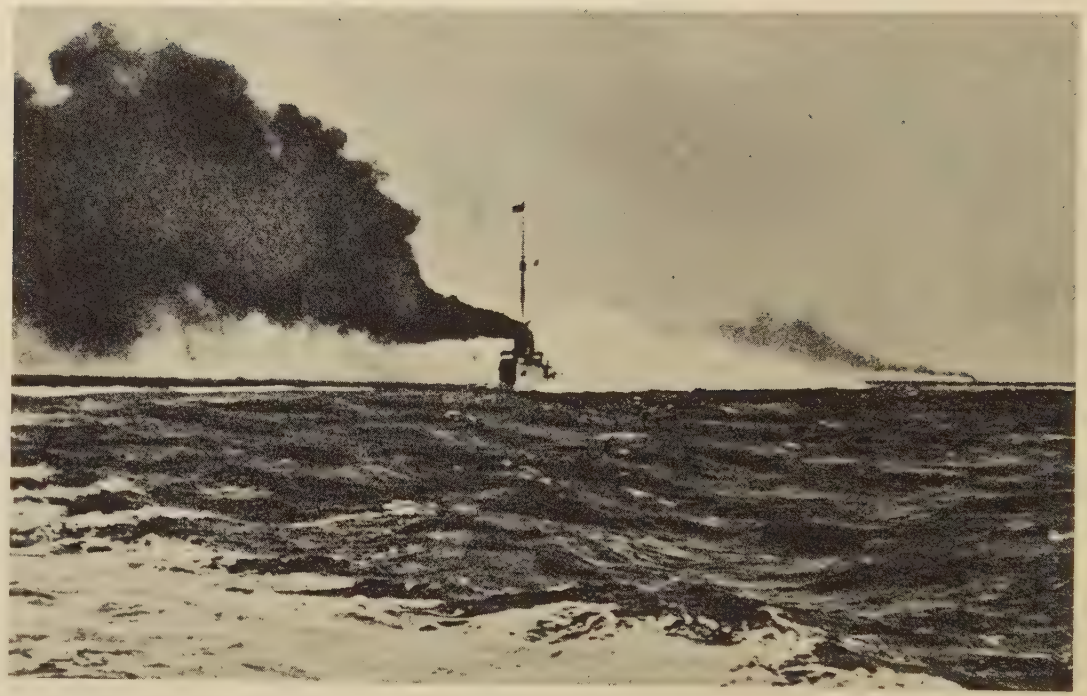
The Allies saw that the *Novara* was in trouble, but they also learned that the armored cruiser *Sankt Georg* and other ships from Cattaro were racing to Horthy's rescue and were not far away to the north. Instead of following up his advantage, Admiral Acton broke off the action and about noon ordered a return to Brindisi. On the way, the *Dartmouth* was torpedoed by the German *UC 25* but managed to stay afloat. The French destroyer *Boutefeu* was less fortunate; she struck one of the mines the *UC 25* had laid, and sank.

By 1840 the Austro-Hungarian cruisers were back at Cattaro, unscathed except for the damage to the *Novara,* and within a week she was repaired and ready for action.

THOUGH the war still had a year and a half to run, this turned out to be the last fight between surface ships in the Adriatic. Allied casualties were 47 dead, two destroyers, *Boutefeu* and *Borea,* at least 14 drifters, and one seaplane, lost. The *Dartmouth* and *Aquila* and three destroyers were out of action for a considerable time. And, as a result of the attack on the drifters, the U-boats found it much easier, for a while, to run the gauntlet of Otranto.

On 24 October 1917 the Central Powers began a major offensive against the Italian army north of the Adriatic, and this led not only to the disastrous defeat of the Italian Army at Caporetto two months later, but also to considerable activity on the part of small craft and monitors in the Gulf of Venice. Each navy aided its army by means of gunfire support,

OTRANTO RAID
15 May 1917
SEA MILES 20 40 60
Cattaro
DARTMOUTH Group
ST. GEORG Group
AQUILA
MIRABELLO Group
Valona
UC 25
MARSALA Group
BOUTEFEU
CASQUE, FAULX, LUCAS
BOREA
VERITA
CARRACCIO
NOVARA
SAIDA
HELGOLAND
Otranto
CORFU



Returning from the Otranto raid of 15 May 1917, the light cruiser HELGOLAND *begins to make smoke. The pursuing* MIRABELLO *group is to the right, while Admiral Acton's* DARTMOUTH *group is to the left, hidden by the* HELGOLAND'S *smoke.*

transportation, and minor raids. But neither side took any major action at sea.

MUTINIES

AFTER three years of war and deprivation, there were signs of war-weariness in the Austro-Hungarian Navy, as there were in other navies. In July 1917, demonstrations on board the ships at Pola were indicative of discontent, but were quickly suppressed.

A much more serious sign of deteriorating morale appeared on 5 October 1917 when some of the 20 men in coastal torpedo boat *11* overpowered her two officers, intimidated their shipmates, and sailed the ship to Ancona, Italy. The fact that the leaders of this mutiny helped to destroy secret material on board, in order to keep it from falling into enemy hands, suggests that the discontent was directed against the war rather than against the Monarchy.

On 1 February 1918 a full-fledged mutiny broke out in the old armored cruisers *Sankt Georg* and *Kaiser Karl VI,* the guard ship *Kronprinz Erzherzog Rudolf,* the depot ship *Gäa,* and a few minor vessels, in the Gulf of Cattaro. Few of these ships had been given much to do during the war. Demanding such things as "the same food for all, more shoes, more leave, and immediate peace," the mutineers locked up

their officers, but promised to restore them to full authority in case of an enemy attack. The Russian Revolution, which had begun the previous year, was having repercussions in most of the belligerent countries and, although the I. & R. flag continued to be honored and the national anthem was still played at retreat, red flags were hoisted on several Austro-Hungarian ships. Because Cattaro had become an important base for German submarines, it was customary to include the German national anthem in the retreat ceremonies. But the Germans were not very popular with the Austro-Hungarian sailors, and the omission of their anthem was one of the few changes the mutineers made.

THE small ships soon returned to normal, and neither the crews of the hard-working flotilla craft nor the troops ashore took part in the mutiny. Indeed, until a reserve ensign took over the direction of the revolt and it began to show definite signs of Communist inspiration, the rebels had done little more than make threats.

Rear Admiral Alexander Hansa, commanding the ships in the Gulf, was not intimidated. Shore batteries were ordered to fire at ships involved in the mutiny and, on the morning of 3 February, the commodore of the torpedo flotilla, Captain Erich Heyssler, issued an ultimatum to the mutineers: any ships that had not surrendered by 1000 that morning would be torpedoed. Within a couple of hours, the revolt collapsed, and by the time a division of battleships that had been ordered down from Pola to quell the revolt arrived, order had been restored.

Three of the ringleaders escaped to Italy in a seaplane they had kept in readiness since the beginning of the mutiny. Four of those who were brought before a court martial were executed, and the rest were given prison terms. In order to get rid of unreliable personnel, some of the old ships, whose usefulness was questionable anyway, were decommissioned. The mutiny had been suppressed before the enemy could take advantage of it.

The unrest led to changes in the naval high command: Admiral Njegovan was replaced on 1 March 1918 and the supreme command of the Navy was divided. Captain Nikolaus Horthy de Nagybánya, who had led the May 1917 raid on Otranto, was promoted to rear admiral and made fleet commander. Vice Admiral Franz Holub, who at the beginning of the war commanded the *Viribus Unitis* and later became chief of staff to Admiral Njegovan, took over the Naval Section of the Ministry of War at Vienna. Vice Admiral Franz Keil was made naval advisor to the Emperor, whose permission was required before important naval operations could be undertaken.

SINKING OF THE SZENT ISTVÁN

BY 1918 the noose was beginning to tighten again in the Strait of Otranto, and once again submarines were finding it difficult to get through. The Allies had installed permanent nets and laid extensive minefields. Furthermore, they patrolled constantly by submarines, airplanes, and various types of small vessels, including 36 wood-hulled, 110-foot U.S. sub-

marine chasers which had crossed the Atlantic during the winter. These craft had new kinds of antisubmarine devices, mainly hydrophones and depth charges.

THE new commander of the Austrian fleet decided to launch a major attack on the Strait and its defenders. With the experience of his raid in May 1917 to go on, and the knowledge that there were Allied armored cruisers at Brindisi, he planned to attack with his modern battleships, scout cruisers, and destroyers. This was the first time the battleships, upon which so much of the national treasure had been spent, were to be employed since the attack on the Italian coast in May 1915.

On the evening of 8 June Admiral Horthy left Pola with the dreadnoughts *Viribus Unitis* and *Prinz Eugen*. Instead of sailing down the open Adriatic, he kept to the deep channels between the Dalmatian islands, and steamed only during the hours of darkness. The other two dreadnoughts, the *Tegetthoff* and the *Szent István,* left Pola the next night, and the few destroyers and torpedo boats available there were divided between the two battleship divisions. The ships at Cattaro also made ready to join the attack.

At 0330 on the 10th, not long after taking her

departure from Pola, the *Szent István* was hit by two torpedoes from an MAS commanded by the same Luigi Rizzo, by this time a lieutenant commander, who had sunk the *Wien* at Trieste six months earlier. Another MAS fired at the *Tegetthoff* but missed her. While the Austrian escort vessels chased the fast little motorboats, the *Tegetthoff* tried to take the crippled *Szent István* in tow, but it became obvious that the latter was doomed, and the attempt was abandoned.

The chaplain blessed his sinking ship, and the crew of the *Tegetthoff* stood in prayerful silence as the *Szent István* slowly turned over and went down. As she turned, the officers assembled on her bridge were thrown into the water, but not all her people got clear and 90 men went down with her. It was a few minutes after 0600 when the *Szent István* sank.

The loss of the *Szent István* was photographed from the *Tegetthoff* and the film was later sold to raise money for the starving children of Austria. It has also been used indiscriminately by the movie industry to portray the sinking of any large warship.

Admiral Horthy called off his attack. It was, in fact, normal and logical for the Italians to be where they were so that they could keep watch on vessels rounding Cape Promontore (Kamenjak) and heading for Dalmatia; but Horthy was convinced that the Italian torpedo boats had not been on any routine patrol but were there because his plan had been betrayed. His suspicion was probably based on the

Viewed from the TEGETTHOFF, *the* SZENT ISTVÁN *rolls over and sinks on the morning of 10 June 1918 some hours after being struck by two torpedoes fired by an Italian motor torpedo boat not far from Pola. Officers and men of the* TEGETTHOFF *give a last salute for the doomed ship and her men.*

traitorous activities of some Italian citizens of the Dual Monarchy and on knowledge of Empress Zita's friendship for Italy. Moreover, he must have considered it probable in any event that the torpedoing of the *Szent István* had alerted the Allied fleet at Brindisi.

The ill-starred plan to raid Otranto was the last offensive effort made by the I. & R. Navy. After Admiral Horthy canceled his attack, the only craft that took any part in the war were those that had done nearly all the fighting, anyway—flotilla craft and airplanes. They carried on in spite of increasing odds against them both at sea and in the air.

DURAZZO, 2 OCTOBER 1918

WHEN Bulgaria surrendered in mid-September, the offensive the Western Allies launched against the Balkans made Austria's position in Albania untenable, and her Army began to evacuate the area. Before the withdrawal was completed, however, the Allies attacked Durazzo with three Italian armored cruisers, four British light cruisers, numerous destroyers, MAS, airplanes, and 11 American submarine chasers. The only defenders were two of the old 400-ton Austro-Hungarian destroyers, a torpedo boat, and the shore batteries. While Allied destroyers and small craft engaged the Austrian ships in the harbor, the heavy ships opened fire on targets ashore from 13,500 yards.

During the battle the Allies sighted and attacked the Austro-Hungarian submarine *U 31* as she was steaming from Cattaro to Otranto. She managed to launch one torpedo at the British cruiser *Weymouth* and blow her stern off, before making her way into Durazzo Harbor. The American submarine chasers thought that two Austrian submarines were sunk during this engagement, but the *U 31* was the only one there and she was not even hit. A steamer in the harbor was damaged and a few houses were destroyed—a disappointing tally for a bombardment by such a large force, and hardly worth the damage to the *Weymouth*.

THE END

TOWARD the end of 1918, the failure of the offensives by the Central Powers in the West and in Italy, the collapse of Bulgaria and Turkey, the acute shortage of food, the growing separatist tendencies within the Austro-Hungarian Monarchy, and radical socialist propaganda combined to undermine confidence in eventual victory. Further, the peace terms outlined in President Woodrow Wilson's Fourteen Points seemed reasonable and acceptable.

Emperor Charles made a last-minute attempt to hold his realm together by reorganizing it along federal lines and promising far-reaching autonomy to various national groups. But he was too late. The Poles declared their independence on 7 October; on the 28th, the Czechoslovak Republic was proclaimed; the Slovenes and Croats joined the Serbs, and the state of Yugoslavia was proclaimed on the 29th.

Seizing upon a hope that the maritime peoples of the new Yugoslavia might be induced to stay under

The British light cruiser WEYMOUTH *lies at Brindisi after her stern was blown away by a torpedo from the* U 31 *during the inept Allied assault on Durazzo in October 1918. This action marked the only occasion when ships of the U. S. Navy engaged those of the Austro-Hungarian Navy.*

his rule, on 30 October 1918 Charles transferred the entire I. & R. Navy to the newly-formed Yugoslav National Council. Officers and men of other nationalities were released from their oath of loyalty to the Emperor, and the next day, the Navy was taken over by Yugoslav officers. A former captain of the battleship *Prinz Eugen*, Rear Admiral Dragutin Prica, was made commander-in-chief, and Captain Janko Vuković de Podkapelski became commander of the fleet. At 1645 on 31 October 1918 the flag of the I. & R. Navy was hauled down and the red-white-blue Yugoslav flag was run up. Far inland, the Danube Flotilla had withdrawn to Budapest and hoisted the flag of Hungary. The Austro-Hungarian Navy no longer existed.

Even as Admiral Horthy, carrying the discarded flag of the I. & R. Navy under his arm, left the scene, the last blow was struck at the Dual Monarchy: announcing the end of dualism, Mihaly, Count Karolyi, set up an independent Hungarian government. The next day, 1 November, Hungarian troops were withdrawn from the Italian front, leaving big gaps in the defense line through which the Italian Army was able to advance.

On 3 November an armistice was concluded between the Allied powers and Austria-Hungary. Emperor Charles did not abdicate until 11 November, but by that time there was no empire left.

"At 1645 on 31 October 1918 the flag of the I. & R. Navy was hauled down . . . the Austro-Hungarian Navy no longer existed."

EPILOGUE

AT 0630 on 1 November 1918, while the Navy's new masters were celebrating the transfer, the powerful battleship *Yugoslavia,* formerly the *Viribus Unitis,* was hit by an Italian mobile mine and went down, taking with her the Yugoslavian fleet commander. This episode does not belong to the history of the Austro-Hungarian Navy, but its proximity to the end of that Navy makes it worthy of note.

Not for long did the Yugoslavs enjoy possession of the former Austro-Hungarian ships. A few days after the transfer, Italian warships began to arrive at Pola and other coastal towns, and on 9 November the Italian flag was hoisted on all former Austro-Hungarian ships. When the fleet was finally distributed, Yugoslavia received only 11 torpedo boats and some of the river monitors, the rest of the fleet being divided among the victors.

After a life of some 200 years that culminated in more than four years of war, the Austro-Hungarian Navy had vanished. It had held its own against vastly superior combinations of enemies, had won many engagements, had guarded its homeland against invasion, and had flown its flag proudly. It dissolved only when the state which it defended passed away.

When their Navy disappeared, the officers and men of the Austro-Hungarian Navy had to start life anew. Only a few could continue to practice their profession in the navies of the new "successor states." It was especially hard for those whose home was in the new, tiny, impoverished, and completely landbound Republic of Austria to find themselves a new way of life. Immediately after hostilities ended, these men were buoyed up by a rumor that the former Austro-Hungarian Navy, including its officers, was going to be taken over by the United States. Naturally, the rumor soon proved to be without foundation.

In time, however, most of the members of the select and well-educated corps of Austro-Hungarian naval officers succeeded in finding new occupations, and some had remarkable careers. Outstanding among them was, of course, Admiral Horthy who, after defeating the Communist regime of Béla Kun in Hungary in 1919, became Regent of that kingdom without a king, a position he retained until the conquest of Hungary by the Russians in 1945. Many of the younger men went back to their studies and entered other professions; some 50 served as officers in the Dutch merchant marine; quite a few came to the United States and made careers for themselves in the academic world or in commerce.

After Hitler's annexation of Austria to Germany in 1937, many former Austrian naval officers, though getting along in years, were taken into the German Navy. One of them, I. & R. Lieutenant Paul Meixner, distinguished himself as the officer in charge of General Rommel's supply routes to North Africa and attained the rank of rear admiral.

Wherever they are and whatever they do, all who served under the red-white-red ensign of the Imperial and Royal Austro-Hungarian Navy have fond memories of that experience and bear its imprint.

The photographs accompanying the story of the Austro-Hungarian Navy's role in World War I are taken from the two-volume work, BILDDOKUMENTE AUS ÖSTERREICH-UNGARNS SEEKRIEG 1914-1918, *compiled and edited by Nikolaus von Martiny, and used with his permission.*

APPENDIXES

VESSELS ACQUIRED BY THE AUSTRO-HUNGARIAN NAVY 1866-1894

	NAME (date of launching)
Central-Battery Armorclads	LISSA (1869)
	ERZHERZOG ALBRECHT (1872)
	KAISER (1871)[1]
	CUSTOZA (1872)
	DON JUAN D'AUSTRIA[1] (1875)
	KAISER MAX (1875)[1]
	PRINZ EUGEN (1877)[1]
	TEGETTHOFF (1878)
Turret Ships	KRONPRINZ ERZHERZOG RUDOLF (1887)
	KRONPRINZESSIN ERZHERZOGIN STEPHANIE (1887)
Frigates	RADETZKY (1872)
	LAUDON (1873)
Corvettes	HELGOLAND (1867)
	FASANA (1870)
	ZRINYI (1871)
	FRUNDSBERG (1873)
	AURORA (1873)
	DONAU (1874)
	SAIDA (1878)

[1] Reconstructed older vessels.

PLACEMENT (tons)	SPEED (knots)	ARMAMENT	ARMOR Deck	Belt	Battery
6,680	13.3	12 *9.4″* 6 *47mm*	1.5 *inches*	6.0 *inches*	5.5 *inches*
5,994	13.0	8 *9.4″*	1.5	6.0	5.5
5,194	12.0	10 *9.4″*		6.0	5.5
7,100	14.0	8 *9.4″* 6 *3.5″* 9 *47mm*	1.5	8.0	7.0
3,588	9.0	8 *8.2″*	1.0	8.0	6.0
3,588	11.0	8 *8.2″*	1.0	8.0	6.0
3,588	11.0	12 *6.8″* 2 *4 pounders*	1.0	8.0	6.0
7,500	16.0	6 *8.2″* 6 *3.5″* 2 *67mm²*	3.0	14.5	14.5
6,870	16.0	3 *12.0″* 6 *4.7″*	2.7	12.0	12.0
5,100	17.0	2 *12.0″* 6 *5.9″*	2.7	9.0	9.0
	14.0	15 *5.9″*			
3,430	13.2	15 *5.9″*			
1,830	10.7	2 *6.8″* 4 *8 pounders* 1 *4 pounder*			
1,970	12.0	2 *8.0″* 4 *8 pounders*			
1,350	11.0	4 *5.9″* 2 *4 pounders*			
2,440	12.0	13 *5.9″*			
2,510	12.0	11 *5.9″*			

Protected Cruisers	KAISER FRANZ JOSEF I (1889)
	KAISERIN ELISABETH (1890)
	KAISERIN UND KÖNIGIN MARIA THERESIA (1893)
Torpedo Vessels	ZARA (1879)
	SPALATO (1879)
	SEBENICO (1882)
	LUSSIN (1883)
	PANTHER (1885)
	LEOPARD (1885)
	TIGER (1887)
Torpedo Gunboats	METEOR (1887)
	KOMET (1888)
	BLITZ (1888)
	PLANET (1889)
	TRABANT (1890)
	SATELLIT (1893)

4,050	19.0	2 *9.4″* 6 *5.9″* 5 *47mm* 10 *37mm* 4 tubes[2]	*2.2 inches*		*3.5 inches*
5,200	19.0	2 *9.4″*[2] 6 *5.9″* 18 *47mm* 4 tubes[2]	2.2	4.0	4.0
840	14.0	5 light guns 5 tubes[2]			
		5 light guns 2 tubes[2]			
890	14.0	5 light guns 1 tube[2]			
1,000	14.0	2 *5.9″* 1 *70mm* 1 tube[2]			
1,530	18.0	2 *4.7″* 10 *47mm* 6 tubes[2]			
1,680	18.0	4 *4.7″* 10 *47mm* 4 tubes[2]			
350	21.0	8 *47mm* 3 tubes			
360					
490	20.0	2 *70mm* 3 tubes			
540	20.0	1 *70mm* 2 tubes			
530	23.0	1 *70mm* 3 tubes			

[2] Original armament, later changed.

Torpedo Boats	I (1875)
	II to VIII (1878 to 1881)
	IX, X (1881)
	XI to XXXII (1883 to 1887)
	XXXIII to XXXIX (1887 to 1891)
	22 HABICHT class (1886 to 1892)
	2 ADLER class (1886)
River Monitors	MAROS (1871)
	LEITHA (1871)
	KÖRÖS (1892)
	SZAMOS (1892)
Gunboats	NAUTILUS (1873)
	ALBATROS (1873)
Paddlewheel Steamers	MIRAMAR (1872) Imperial Yacht
	ANDREAS HOFER (1873)[1] Gunboat
	TRITON (1875) Harbor Boat
	TAURUS (1877) Gunboat
	GREIF (1883) Admiral's Yacht
Transports	POLA (1870)
	CYKLOP (1871)

[1] Reconstructed older vessels.

10	13.0	2 spar torpedoes			
27-29	15 to 18.0	2 tubes			
47	17.0	2 tubes			
56-64	17.0	1 *37mm* 1 tube			
64-70	18.0	2 *37mm* 2 tubes			
78 95	19.0	2 *37mm* 2 tubes			
310	8.0	2 *5.9"*[2]	1.0 *inches*	2.0 *inches*	2.5 *inches*
448	10.0	2 *4.7"* 2 *70mm*			
570	10.0	2 *5.9"* 1 *70mm*			
1,830	17.0	2 *3.5"*			
560	10.0	1 *5.9"*			
194	10.0	2 *70mm*			
560	11.0	1 *5.9"* 2 *3.9"* 1 *70mm*			
1,370	13.0	2 light guns			
910	10.0	2 light guns			
2,150	11.0	2 *3.5"*			

[2] Original armament, later changed.

Torpedo Depot Ships	PELIKAN (1891)
	GÄA (1891)
Tugboats	HIPPOS (1888)
	BUFFEL (1888)
Fireboat	GIGANT (1889)
Water Tenders	NAJADE (1891)
	NYMPHE (1894)
Mine Tenders	DROMEDAR (1891)
	SALAMANDER (1891)
Oiler	VESTA (1892)

2,470	18.3	2 5.9″ 2 70mm 8 47mm	
13,000	19.0	4 4.7″ 4 70mm	
97	12.0	3 light guns	
260	11.5	1 47mm	
620	9.0		
230			
175	10.0	3 47mm	
268		2 47mm	
2,130	10.0		

THE AUSTRO-HUNGARIAN NAVY 1914-1918

	NAME (date of launching)
Battleships	SZENT ISTVÁN (1914)[1]
	PRINZ EUGEN (1912)
	TEGETTHOFF (1912)
	VIRIBUS UNITIS (1911)
	ZRINYI (1910)
	RADETZKY (1909)
	ERZHERZOG FRANZ FERDINAND (1908)
	ERZHERZOG FERDINAND MAX (1905)
	ERZHERZOG FRIEDRICH (1904)
	ERZHERZOG KARL (1903)
	BABENBERG (1902)
	ARPAD (1901)
	HABSBURG (1900)
	BUDAPEST (1896)
	MONARCH (1895)
	WIEN (1895)
Armored Cruisers	SANKT GEORG (1903)
	KAISER KARL VI (1898)
	KAISERIN und KÖNIGIN MARIA THERESIA (1893)
Scout Cruisers	NOVARA (1913)[1]
	HELGOLAND (1912)[1]
	SAIDA (1912)[1]
	ADMIRAL SPAUN (1909)
Protected Cruisers	KAISERIN ELISABETH (1890)
	KAISER FRANZ JOSEF I (1889)

[1] Not completed until after the outbreak of the war.

ISPLACEMENT (tons)	SPEED (knots)	ARMAMENT	ARMOR Deck	Belt	Turrets
20,000	20.0	12 *12″* 12 *5.9″* 18 *2.5″*	2.0 *inches*	11.0 *inches*	11.0 *inches*
14,500	20.0	4 *12″* 8 *9.4″* 20 *3.9″*	2.0	9.0	10.0
10,600	20.0	4 *9.4″* 12 *7.6″*	3.0	8.5	9.5
8,300	19.0	3 *9.4″* 12 *5.9″*	2.75	9.0	8.5
5,600	17.0	4 *9.4″* 6 *5.9″*	2.5	10.5	10.0
7,300	22.0	2 *9.4″* 5 *7.6″* 4 *5.9″*	2.5	8.5	8.5
6,300	20.0	2 *9.4″* 8 *5.9″*	2.5	9.0	8.0
5,200	19.0	2 *7.6″* 8 *5.9″*	2.2	4.0	4.0
3,500	27.0	9 *3.9″*	0.8	2.4	1.0
3,500	26.0	7 *3.9″*	0.8	2.4	1.0
4,050	19.0	8 *5.9″* 8 *5.9″*	2.2		3.5

Cruisers	SZIGETVÁR (1900)
	ASPERN (1899)
	ZENTA (1897)
Torpedo Cruisers	PANTHER (1885)
	LEOPARD (1885)
Destroyers	WARASDINER (1913)[1, 2]
	TÁTRA (1912)
	TRIGLAV (1913)
	ORJEN (1913)
	LIKA (1913)
	CSEPEL (1912)
	BALATON (1912)
	DUKLA (1917)[1]
	USZOK (1917)[1]
	LIKA (1917)[1, 3]
	TRIGLAV (1917)[1, 3]
	CSIKÓS (1909)
	REKA (1909)
	VELEBIT (1909)
	TURUL (1908)
	USKOKE (1907)
	HUSZAR (1905)
	DINARA (1909)
	PANDUR (1908)
	SCHARFSCHÜTZE (1907)
	ULAN (1906)
	STREITER (1906)
	WILDFANG (1906)

[1] Not completed until after the outbreak of war.

2,300	20.0	8 *4.7″*	2.0 *inches*	2.0 *inches*
1,530	18.0	4 *70mm*		
386	28.0	6 *70mm* 4 *18″* tubes		
850	33.0	2 *3.9″* 6 *70mm* 4 *18″* tubes		
400	28.0	6 *70mm* 3 *18″* tubes		

Built for China and taken over by the Austro-Hungarian Navy.

[3] Replacements for their namesakes sunk at Durazzo in 1915.

Torpedo Gunboats	MAGNET (1896)
	SATELLIT (1893)
	TRABANT (1890)
	PLANET (1889)
	BLITZ (1888)
	KOMET (1888)
	METEOR (1887)
Torpedo Boats	74 to 100[4] (1913 to 1914)
	50 to 73 (1905 to 1909)
	1 to 12 (1909 to 1910)
	13 to 18 (1896 to 1899)
	19 to 40 (1886 to 1892)
	41, 42 (1886)
	43 to 45 (1887 to 1891)
Submarines	U 1, U 2 (1909)
	U 3, U 4 (1908, 1909)
	U 5, U 6 (1909)
	U 10, U 11 (1915)[5]
	U 12 (1914)[1]
	U 14 (1915)[6]
	U 15 to U 17 (1915)
	U 20 to U 23 (1916, 1917)
	U 27 to U 32, U 40, 41, 43, 47 (1916, 1917)

[1] Not completed until after the outbreak of the war.

510	26.0	6 *1.8″* 3 *18″* tubes		
530	23.0	1 *70mm* 8 *47mm* 3 *18″* tubes		
540 480	20.0	2 *70mm* 8 *47mm* 2 *18″* tubes		
360	21.0	8 *47mm* 2 *18″* tubes		
250	28.0	2 *70mm* 4 *18″* tubes		
200	25.0	4 *47mm* 3 *18″* tubes		
110	28.0	2 *47mm* 2 *18″* tubes		
125	26.0	2 *47mm* 3 *18″* tubes		
78	19.0	2 *37mm* 2 *18″* tubes		
95			RANGE (miles)	
65			Surface	Submerged
230/270	10.3/5			25.0
240/300	12.1/8.7		1,400	60.0
236/273	11.5/10		1,000	27.5
128/141	7.5/6.2		1,200	65.0
236/273	11.4/8		1,000	27.5
400/550	13/6.9		6,800	115.0
128/141	6/4.9		1,200	65.0
164/204	13.5/7.3			
275/305	9.5/5.5		6,600	130.0

Twenty-two of these were completed after the outbreak of the war. [5] Sent from Germany by rail. [6] Formerly the French submarine *Curie*.

Danube Monitors

BOSNA[7] (1915)
SAVA (1915)
INN (1915)
ENNS (1914)
BODROG (1904)
TEMES (1904)
KÖRÖS (1892)
SZAMOS (1892)
LEITHA (1871)
MAROS (1871)

Auxiliary Vessels

KRONPRINZ ERZHERZOG RUDOLF (1887)
MARS[8] (1878)
POLA[1] (1914)
TEODO (1915)
LUSSIN (1883)
TAURUS (1904)
MIRAMAR (1872)
LACROMA[9] (1887)
DALMAT (1896)
CYKLOP (1871)
GÄA (1891)
PELIKAN (1891)
VESTA (1892)
HERKULES (1910)
DELTA (1870)[10]
AURORA (1873)
CHAMÄLEON[1] (1913)
DROMEDAR (1891)
SALAMANDER (1891)
BASILISK (1902)
NIXE (1904)
NAJADE (1891)
NYMPHE (1894)
GIGANT (1889)
PLUTO (1897)
HIPPOS (1888)
BÜFFEL (1888)

A few small tenders and some lesser craft were also added to the Austro-Hungarian fleet during the course of the war.

[1] Not completed until after the outbreak of war. [7] Formerly the *Temes*

600	13.0	2 *4.7″* 2 *4.7″* Howz.	
536	12.0	2 *4.7″* 3 *4.7″* Howz.	
440	13.0	2 *4.7″* 1 *4.7″* Howz.	
448	10.0	2 *4.7″*	
310	8.5	1 *4.7″*	
6,900	16.0	3 *12″*, 6 *4.7″*	Harbor Guard Ships
7,500	16.0	6 *9.4″*, 5 *5.9″*	
13,200	14.0	2 *47mm*	Colliers
1,000	14.0	4 *47mm*	Yachts
1,300	15.0	2 *47mm*, 2 *37mm*	
1,840	17.0	2 *3.5″*	
1,680	18.0	6 *4.7″*	
260	12.0		
2,150	11.0	2 *3.5″*	Repair Ship
13,000	19.0	4 *4.7″*, 4 *70mm*	Torpedo Depot Ship
2,430	18.3	2 *5.9″*, 2 *70mm*, 8 *47mm*	Submarine Depot Ship
2,130	10.0		Oiler
1,500	10.0		Submarine Tender
1,340			Mine Depot Hulks
1,360			
1,100	21.0		Minelayer
175	10.0	3 *47mm*	Mine Tenders
268	10.0	2 *47mm*	
314	11.0	2 *47mm*	
250	8.3		Water Tenders
620	9.0		
230	9.0		
260	11.5		Pump Tenders
99	11.0		
97	12.0		Tugboats

[7] Formerly the light cruiser *Tegetthoff*, launched in 1878. [9] Formerly the light cruiser *Tiger*, launched in 1887. [10] Formerly the screw corvette *Zrinyi*, launched in 1871.

COMPARISON OF DEFENSE BUDGETS IN KRONEN (Kr.)

	Country	*Army*	*Navy*
1905	GREAT BRITAIN *pop. 43 million*	581 million Kr. *(13.5 Kr. per person)*	676.3 million Kr. *(15.7 Kr. per person)*
	UNITED STATES *pop. 83 million*	506 million Kr. *(6.1 Kr. per person)*	467 million Kr. *(5.6 Kr. per person)*
	GERMANY *pop. 60.6 million*	697 million Kr. *(11.5 Kr. per person)*	231.5 million Kr. *(3.8 Kr. per person)*
	ITALY *pop. 33.3 million*	237 million Kr. *(7.1 Kr. per person)*	105.5 million Kr. *(3.2 Kr. per person)*
	AUSTRIA-HUNGARY *pop. 47.4 million*	419 million Kr. *(8.8 Kr. per person)*	96.6 million Kr. *(2.0 Kr. per person)*
1910	GREAT BRITAIN *pop. 45 million*	560 million Kr. *(12.4 Kr. per person)*	824.5 million Kr. *(18.3 Kr. per person)*
	UNITED STATES *pop. 92 million*	672 million Kr. *(7.3 Kr. per person)*	503.7 million Kr. *(5.5 Kr. per person)*
	GERMANY *pop. 64.9 million*	831 million Kr. *(12.8 Kr. per person)*	426.2 million Kr. *(6.6 Kr. per person)*
	ITALY *pop. 34.5 million*	381 million Kr. *(11.1 Kr. per person)*	191.6 million Kr. *(5.6 Kr. per person)*
	AUSTRIA-HUNGARY *pop. 51.5 million*	461 million Kr. *(9.0 Kr. per person)*	83.6 million Kr. *(1.6 Kr. per person)*
1914	GREAT BRITAIN *pop. 46.4 million*	589 million Kr. *(12.7 Kr. per person)*	1,051.6 million Kr. *(22.7 Kr. per person)*
	UNITED STATES *pop. 98.6 million*	400.5 million Kr. *(4.1 Kr. per person)*	610.2 million Kr. *(6.2 Kr. per person)*
	GERMANY *pop. 68.4 million*	1,700 million Kr. *(25.9 Kr. per person)*	476 million Kr. *(7.0 Kr. per person)*
	ITALY *pop. 35.3 million*	369 million Kr. *(10.5 Kr. per person)*	260.2 million Kr. *(7.4 Kr. per person)*
	AUSTRIA-HUNGARY *pop. 53.3 million*	576 million Kr. *(10.4 Kr. per person)*	150.7 million Kr. *(2.8 Kr. per person)*

COMPARATIVE NAVAL STRENGTH, MAY 1914 (In thousands of tons displacement)

Country		Great Britain	Germany	United States	France	Japan	Italy	Russia	Austria Hungary
Battleships[1]	*No.*	60	43	44	24	18	17	12	15
	TONS	1,030	590	598	382	257	254	156	181
Armored Cruisers[2]	*No.*	43	13	15	22	15	10	6	3
	TONS	605	186	190	215	197	81	65	19
Small Cruisers	*No.*	73	41	17	12	18	11	8	9
	TONS	373	157	70	55	76	32	50	25
Destroyers and Torpedo Boats	*No.*	289	219	67	234	79	121	125	86
	TONS	166	87	38	51	25	30	49	33
Submarines	*No.*	77	28	38	55	15	20	28	6
	TONS	33	10	14	29	4	5	8	2
Guns (over 9″)		550	273	212	188	140	94	56	109
Total Tonnage (Completed)		2,207,000	1,030,000	910,000	732,000	559,000	402,000	328,000	260,000

[1] Including armored coast defense vessels. [2] Including battle cruisers.

In addition to the above, the following tonnages were building or projected: Great Britain, 593,000; Germany, 326,000; United States, 229,000; France, 346,000; Japan, 182,000; Italy, 202,000; Russia, 429,000; Austria-Hungary, 156,000. Not all of these tonnages were completed during the war, but other ships, which had not been contemplated at the beginning of the war, were added.

Appendix V

NAVAL LOSSES IN THE ADRIATIC DURING WORLD WAR I

THE ROYAL ITALIAN NAVY *(By all causes)*

	NAME	DISPLACEMENT (tons)	DATE OF LOSS
Battleships	BENEDETTO BRIN	13,000	September 1915
	LEONARDO DA VINCI	22,000	August 1916
	REGINA MARGHERITA	13,000	December 1916
Armored Cruisers	AMALFI	10,000	July 1915
	GIUSEPPE GARIBALDI	7,000	July 1915
Destroyers	TURBINE	370	May 1915
	INTREPIDO	680	December 1915
	AUDACE	680	May 1916
	IMPETUOSO	680	July 1916
	NEMBO	370	October 1916
	BOREA	370	May 1917
	CAIROLE		April 1918
	GARIBALDINO	388	July 1918
	ROSSAROL	1,028	November 1918
Torpedo Boats	5 PN	120	June 1915
	SERPENTE	200	June 1915
	17 OS	120	July 1915
	PERSEO	200	February 1917
	SCORPIONE	200	May 1917
	36 PN	120	November 1918
Submarines	MEDUSA	250	June 1915
	NEREIDE	225	August 1915
	JALEA	250	August 1915
	GIACINTO PULLINO	345	July 1916
	BALILLA	250	July 1916
	GUGLIELMOTTI		May 1917

THE AUSTRO-HUNGARIAN NAVY

	NAME	DISPLACEMENT (tons)	DATE OF LOSS
Battleships	WIEN	5,600	10 December 1917
	SZENT ISTVÁN	20,000	10 June 1918
Cruisers	ZENTA	2,300	16 August 1914
	KAISERIN ELISABETH	4,050	2 November 1914
Destroyers	LIKA	850	29 December 1915
	TRIGLAV	850	29 December 1915
	WILDFANG	400	4 June 1917
	STREITER	400	16 April 1918
Torpedo Boats	26	78	23 August 1914
	11	110	5 October 1917
Submarines	U 12	236	8 August 1915
	U 3	240	12 August 1915
	U 6	236	May 1916
	U 16	128	October 1916
	U 30	275	March 1917
	U 23	164	February 1918
	U 20	164	July 1918

THE FRENCH NAVY *(By Austro-Hungarian action)*

Armored Cruiser	LÉON GAMBETTA	12,500	April 1915
Destroyers	DAGUE	730	February 1915
	RENAUDIN	800	March 1916
	FOURCHE	730	June 1916
	BOUTEFEU	715	May 1917
Submarines	CURIE	400	December 1914
	FRESNEL	400	December 1915
	MONGE	400	December 1915
	FOUCAULT	400	September 1916
	CIRCE	350	September 1918

POSTWAR DISTRIBUTION OF THE AUSTRO-HUNGARIAN FLEET

TO GREAT BRITAIN

Battleships	ERZHERZOG FERDINAND MAX
	BABENBERG
	HABSBURG
	BUDAPEST
	MONARCH
Armored Cruisers	SANKT GEORG
	KAISER KARL VI
	KAISERIN UND KÖNIGIN MARIA THERESIA
Light Cruisers	ADMIRAL SPAUN
	ASPERN
	SZIGETVÁR
	PANTHER
	LEOPARD
Torpedo Boats	50
	51
	53
	56
	57
	58
	59
	8
	9
	10
	14
	18

TO ITALY

Battleships	TEGETTHOFF
	ZRINYI
	RADETZKY
Light Cruisers	HELGOLAND *(Brindisi)*[1]
	SAIDA *(Venezia)*
Destroyers	LIKA[2] *(Cortellazzo)*
	TRIGLAV[2] *(Grado)*
	USZOK[2] *(Monfalcone)*
	ORJEN *(Pola)*
	TÁTRA *(Fasana)*
	CSEPEL *(Muggia)*
	BALATON *(Zenson)*
	HUSZÁR
	DINARA
	VELEBIT
	CSIKÓS
	TURUL
	USKOKE
	SCHARFSCHÜTZE
Torpedo Boats	52
	1
	2
	4
	5
	6

[1] Names in parentheses are those given the vessels by their new masters.

TO FRANCE

Battleships	PRINZ EUGEN
	ERZHERZOG KARL
	ERZHERZOG FRIEDRICH
Light Cruiser	NOVARA *(Thionville)*[1]
Destroyers	DUKLA[2] *(Matelot Leblanc)*
	REKA
	PANDUR
Torpedo Boats	13
	15
	16
	17

TO YUGOSLAVIA

Torpedo Boats	87
	93
	96
	97
	76
	77
	78
	79
	69
	61
	60
	54 *(T 1-9)*

TO GREECE

Destroyer	ULAN *(Smyrni)*
Torpedo Boats	89
	98
	99
	100
	92 *(Proussa)*
	94
	95 *(Pergamos)*
	96

TO ROMANIA

Torpedo Boats	82 *(Năluca)*
	83 *(Smeul)*
	84 *(Fulgerul)*
	74 *(Viforul)*
	75 *(Vărtez)*
	80 *(Vijelie)*
	81 *(Sborul)*

TO PORTUGAL

Torpedo Boats	85
	86 *(Ave)*
	88
	89 *(Sado)*
	90 *(Vis)*
	91 *(Mondego)*

[2] One of four destroyers built during the war: *Lika* and *Triglav* were replacements for the two sunk at Durazzo in 1915.

VARIOUS STATISTICS ON AUSTRIA-HUNGARY

Area:	270,000 square miles.
Inhabitants:	About 52 million in 1914.
Total budget in 1913:	1,050,000,000 dollars.
Defense budget in 1913:	150,000,000 dollars, or less than three dollars per person.
Naval budget in 1913:	30,000,000 dollars.
Peacetime strength of Army:	415,000 men, including territorial troops.
Peacetime strength of Navy:	About 20,000 men.
Total exports in 1912:	About 600,000,000 dollars, or 12 dollars per person.
Total imports in 1912:	About 450,000,000 dollars, or 9 dollars per person.

DISTRIBUTION OF NATIONALITIES 1910

	Austria	Hungary
Germans	9,950,000	2,037,000
Magyars	—	9,945,000
Czechs	6,436,000	—
Poles	4,968,000	—
Ukrainians	3,519,000	473,000
Romanians	275,000	2,949,000
Slovaks	—	1,968,000
Croats	783,000	1,833,000
Slovenes	1,253,000	—
Serbs	—	1,106,000
Italians	768,000	—
Minor groups	620,000	575,000
Totals	28,572,000	20,886,000

POPULATION 1910

Austria	28,572,000
Hungary	20,886,000
Bosnia-Herzegovina[1]	1,932,000
Total	51,390,000

[1] Bosnia-Herzegovina, inhabited mostly by Serbo-Croatian-speaking peoples, was administered jointly by Austria and Hungary.

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ANTHONY EUGENE SOKOL, born and educated in Vienna, entered the Austro-Hungarian Navy as a cadet at the age of 18 in 1915, while his country was engaged in the First World War, and served until the dissolution of that Navy in 1918. He served afloat in the battleship *Prinz Eugen* and in cruisers and torpedo craft, and at the end of the war he was a lieutenant.

He took part in the battle of the Otranto Strait on 15 May 1917, while he was serving in the light cruiser *Novara;* he engaged in antisubmarine warfare during the course of which his ship was credited with probably sinking an Italian submarine; and, while in a torpedo boat, he helped save survivors from the sinking battleship *Szent István.*

After the war, Lieutenant Sokol entered the Dutch merchant marine, serving as navigator in various ships, mainly in the Netherlands East Indies, until 1923. The following year he came to the United States, to be an instructor in foreign languages at Mississippi State Teachers College, Hattiesburg, Mississippi.

He was back in Vienna in 1926 as secretary of the Austro-American Institute of Education, during which time he also studied at the University of Vienna. He returned, briefly, to Mississippi State Teachers College, and in 1929 went to Stanford University, Palo Alto, California, to teach and to study for advanced degrees. He earned his M.A. in 1930 and his Ph.D. two years later, and has remained a member of the Stanford faculty until today.

During World War II, Professor Sokol was asked to teach Malay and to administer the Far Eastern Army Specialized Training Program at Stanford. Later, he became Language Director, Civil Affairs Training School, at Stanford's Hoover Institution for War, Revolution, and Peace. In 1945 he became head of the University's Asiatic and Slavic Languages Department and administrator of the Pacific-Asiatic Interdepartmental Program. During the war he also taught courses on naval affairs and others on military subjects.

In 1956 he became Professor of International Security Affairs in the Department of Political Science at Stanford, and Research Associate at the Hoover Institution. Six years later he became Professor Emeritus. As such he co-operated in studies of problems of arms control and disarmament in the Pacific-Asian region, conducted by the Hoover Institution for the U. S. Agency for Arms Control and Disarmament. Professor Sokol has written numerous articles for the *U. S. Naval Institute Proceedings,* the *Marine Corps Gazette,* and other American and foreign periodicals. Among his books are *Sea Power in the Nuclear Age,* published in 1961 and later translated into Japanese. He has two works in preparation: *Defense Pacts Around the World* and *The Most Beautiful Women in the History of Art.*

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